



# Graduate Catalog

## 2021–2022

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The Graduate Catalog, an official publication of the WSU Graduate School, is produced annually to provide general information for students admitted to or considering graduate education at Wichita State. The Graduate Catalog contains policies, regulations, procedures and fees current and in effect at the time of publication. Wichita State University and the Graduate School reserve the right to make changes at any time to reflect current university policies, administrative regulations and procedures, and revisions required by changes in federal or state law. Information provided in this catalog is subject to change without notice and does not constitute a contract between Wichita State University and a student or an applicant for admission to the Graduate School.

Produced by Ginny Vincent, Catalog Editor, March 2021.



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## Graduate Degree Programs and Departmental Admission Requirements

1845 Fairmount  
Wichita, Kansas 67260-0004  
316-978-3095  
Graduate School Website (<http://wichita.edu/gradschool/>)<sup>1</sup>

The Graduate School at Wichita State University considers each applicant holistically for admission to its various programs. While baselines are set to aid departments in making decisions, additional factors will be considered when reviewing each application. These considerations include experience, recommendations, test scores and even program capacity. Unless otherwise indicated below, the GPA baseline for graduate admission is a 2.750, and required application materials will be uploaded or entered through the online application portal. Admission requirements and deadlines are subject to change. Please refer to the Graduate School website for the most up-to-date information.

Programs	Departmental Application Requirements
<b>Accounting (MACC)</b>	Overall GPA of 3.200; grade of B (3.000) or better in all accounting courses; Undergraduate degree in accounting or the functional equivalent of an undergraduate degree in accounting from an AACSB accredited institution. Applicants not meeting these criteria will be required to take the GMAT and obtain a satisfactory score. International applicants may have to complete significant additional foundational coursework beyond what may appear on a student's transcript. This can include, but is not limited to, (re)taking business law, financial accounting, taxation, accounting information systems and auditing courses at Wichita State University.
<b>Aerospace Engineering</b>	
Master of Science (MS)	GPA 3.000; undergraduate degree in engineering or related field.
Doctor of Philosophy (MS to PhD)	GPA 3.250 in all graduate hours, master's degree in engineering or physical science.
Doctor of Philosophy (BS to PhD)	Minimum GPA of 3.250 in last 60 credit hours (2 years) of coursework; undergraduate degree in aerospace engineering or closely related field; a letter of recommendation from a faculty member in the department of aerospace engineering stating that he or she would be the student's academic and research advisor.
<b>Aging Studies (MA)</b>	Contact information and recommendations from two professional references; a personal goals essay of 500 words or less which clearly articulates the applicant's reason for seeking admission to the aging studies program. Essay should be reflective of their desire for admittance and professional goals related to the aging studies program and include a statement documenting computer literacy including experience with online learning, Microsoft Office and overall familiarity with online navigation. Students are highly encouraged to review the information found on the Wichita State Office of Online Learning website, paying particular attention to the Introduction to Online Learning, and Computer Skills and Preparation information. The priority application deadlines for scholarship consideration are: July 15 for fall admission; December 1 for spring admission; April 15 for summer admission.
<b>Anthropology (MA)</b>	GPA 3.250; 15 credit hours of anthropology to include courses in the history and theory of anthropology and in the main three subdivisions of the discipline; completion of an introductory statistics courses (PSY 301, SOC 313, STAT 370 or equivalent); and a statement of purpose that addresses their intended area(s) of specialization. Deadlines: February 1 for fall, October 1 for spring.
<b>Applied Economics (MA)</b>	GPA 2.750 in all economic courses and required mathematics; must have completed principles of macro- and micro-economics, one course in statistics and one course in calculus, each with a grade of C + (2.300 points) or better.
<b>Art, Studio (MFA)</b>	Options include: ceramics, painting, photo media, printmaking, sculpture. Hold a bachelor's degree and substantial previous study in studio art or related field, including a minimum of 12 credit hours of art history. An overall undergraduate GPA of at least 2.750 is required. Submit application through the online application portal, including a statement of intent (outlining artistic goals, professional objectives and expectations of graduate study experience); artist's statement (outlining artistic philosophy and the nature of work presented in the portfolio); resume listing education, academic and art awards and recognition, exhibitions and any relevant information; three original letters of recommendation; and Portfolio with 15-20 examples of recent work labeled with title, description, size, medium and date. Admission to the program is for the fall semester following acceptance, although outstanding applicants may be considered for the spring semester if and when there is an opening in the program. Preferred application deadline: completed application materials must be received by the first Wednesday in February for admission to the following fall semester and the first Wednesday in October for the following spring semester. Extended application deadline: applications are considered on a rolling basis when there is room in the program with an extended deadline of April 1.
<b>Arts Leadership and Management (MA)</b>	GPA 3.000 on all previously completed undergraduate and graduate coursework; personal interview; contact information for two professional references. Deadlines: July 15 for fall admission; December 1 for spring admission.

<b>Audiology (AuD)</b>	GPA 2.750 overall; 3.000 GPA last 60 credit hours and in major; official GRE or Miller Analogies Test (MAT) taken within the last five years. Applicants will file a separate application through CSDCAS which will include three letters of recommendation and professional resume. Summer admission only. Deadlines: CSDCAS application is due February 1, by 11:59 pm EST. Graduate School application, fee and transcripts are also due February 1.
<b>Biological Sciences (MS)</b>	Bachelor's degree in a life science-related discipline from an accredited institution; GPA 2.750 overall; GPA 3.000 in all undergraduate biology courses; three letters of reference from science faculty, one-page statement of purpose that addresses the student's areas of interest in biology. Application deadlines: March 1 for fall, October 1 for spring.
<b>Biomedical Engineering</b>	
Master of Science (MS)	GPA 3.000; bachelor's degree in a discipline relevant to BME; statement of purpose including a section on research interests; GRE scores; three letters of recommendation.
Doctor of Philosophy (MS to PhD)	GPA 3.250 in all graduate-level coursework; master's in discipline relevant to biomedical engineering; statement of purpose including section on research interests; GRE scores; three letters of recommendation.
Doctor of Philosophy (BS to PhD)	GPA 3.500 in all undergraduate coursework and GPA 3.250 in any graduate-level coursework; bachelor's in discipline relevant to biomedical engineering; statement of purpose including section on research interests; GRE scores; three letters of recommendation.
<b>Business Administration (MBA)</b>	GMAT or GRE scores (taken within the last six years); personal goals statement that clearly articulates the applicant's reasons for seeking admission (500 words maximum); two Reference Forms completed by faculty, employer, or suitable referee; current resume. GMAT/GRE may be waived in certain circumstances; visit <a href="http://wichita.edu/mba">http://wichita.edu/mba</a> ( <a href="http://wichita.edu/mba/">http://wichita.edu/mba/</a> ) for details on exceptions. Application deadline – July 1 for fall; December 1 for spring.
<b>Business Analytics (MS)</b>	3.000 GPA in the last 60 credit hours of coursework (graduate and/or undergraduate); a personal statement that clearly states the applicant's reason for seeking admission to the program (500 words maximum); a professional resume. Students with a GPA below a 3.000 may apply with GRE or GMAT scores for consideration.
<b>Executive Business Administration (EMBA)</b>	Two confidential recommendations, acknowledgment of responsibility form, essay, current resume, transcripts from all schools previously attended, \$75 nonrefundable application fee. Program admits every other year (odd years only). The next intake is Fall 2021; application deadline for students in the United States is June 1, for students outside the United States, the deadline is May 1. Early application is encouraged. Visit website for specific details and forms: <a href="http://wichita.edu/emba">http://wichita.edu/emba</a> ( <a href="http://wichita.edu/emba/">http://wichita.edu/emba/</a> ).
<b>Chemistry</b>	
Master of Science (MS)	BS in Chemistry (ACS approved or equivalent); GPA 3.000 overall and in all chemistry courses; general GRE (strongly recommend Chemistry Subject GRE as well); two letters of recommendation from individuals familiar with the applicant's academic background; a one-page typed statement of goals and research interests. Deadlines: April 1 for fall, September 1 for spring.
Doctor of Philosophy (PhD)	BS in Chemistry (with the following minimum subject requirements: one year general chemistry; one year organic, analytical, inorganic and physical chemistry; one semester biochemistry; one year physics, and one year calculus); GPA of at least 3.000 both overall and in chemistry courses; two letters of recommendation from individuals familiar with the applicant's academic background; a one-page typed statement of goals and research interests; General GRE (department strongly recommends the Chemistry Subject GRE as well). Deadlines: April 1 for fall, September 1 for spring.
<b>Communication (MA)</b>	GPA 3.000; statement of purpose.
<b>Communication Sciences and Disorders</b>	
Master of Arts (MA)	GPA 2.750 overall; 3.000 last 60 credit hours and a grade that generates at least 2.000 credit points per credit hour in all prerequisite coursework; official GRE or Miller Analogies Test (MAT) taken within the last five years (GRE preferred). Applicants will file a separate application through CSDCAS which will include three letters of recommendation and professional resume. Fall admission only. Deadlines: CSDCAS application is due February 1, by 11:59 pm EST. Graduate School application, fee and transcripts are also due February 1.
Doctor of Philosophy (PhD) All Tracks	Applicants must submit a statement of purpose, professional resume; three letters of recommendation. Students must also submit the documents and meet the requirements outlined below for their chosen track.

BS to PhD Clinical Track in SLP or Audiology	Hold a bachelor's degree with a major in CSD from a regionally accredited institution or a recognized institution in another country whose requirements for the bachelor's degree are substantially equivalent to a US bachelor's degree. If background is not in CSD, prerequisite coursework as required for entry into the SLP master's degree program (for SLP track) or as determined by the program faculty (for audiology track) must be completed prior to application to the PhD program. Minimum GPA of 3.500 overall and 3.600 in CSD major coursework; official scores for the GRE taken within the last 5 years; highly rated applicants will be offered an interview. Please note that this is an exceptionally competitive, low-acceptance program, and not all applicants will be offered an interview. Interview will include (but is not limited to) an assessment of academic potential, professional goals, motivation and commitment to the profession, and interpersonal and communication skills.
BS to PhD Nonclinical Track	Hold a bachelor's degree from a regionally accredited institution or a recognized institution in another country whose requirements for the bachelor's degree are substantially equivalent to a US bachelor's degree. Minimum GPA of 3.250 overall and 3.500 in last 60 credit hours; official scores for the GRE or MAT taken within the last 5 years; qualified applicants will be offered an interview. Not all applicants will be offered an interview. Interview will include (but is not limited to) an assessment of academic potential, professional goals, motivation and commitment to the profession, and interpersonal and communication skills.
Master's/Doctor of Audiology to PhD Track	Hold a master's degree in SLP or Doctor of Audiology degree from a CAA accredited program. Minimum GPA of 3.250 overall and 3.500 in awarded graduate degree program; official scores for the GRE or MAT taken within the last 5 years; qualified applicants will be offered an interview. Not all applicants will be offered an interview. Interview will include (but is not limited to) an assessment of academic potential, professional goals, motivation and commitment to the profession, and interpersonal and communication skills.
<b>Computer Science (MS)</b>	BS in computer science or a related area; overall GPA of 3.000. GRE General Test is required for those whose degree is from institutions outside the U.S. There is no minimum GRE score requirement. Letters of Recommendation are optional but encouraged, especially if GPA/GRE do not truly reflect the applicant's skills and/or abilities.
<b>Computing (MS)</b>	GPA 3.000 in an earned bachelor's degree from a regionally accredited university or international equivalent in a STEM field. Students whose degree is from outside the United States are also required to submit official scores of the GRE general test.
<b>Counseling (MEd)</b>	GPA 3.000 overall; statement of professional goals; resume; contact information for three people to serve as professional references; resume. Criminal background check will be required after admission. Application deadlines: May 1 for summer/fall applicants; Nov. 1 for spring applicants.
<b>Creative Writing (MFA)</b>	GPA 3.000 in English coursework; 24 credit hours of relevant coursework; sample of original writing in literary fiction (approximately 20 pages) or poetry (about six poems); three letters of recommendation; sample of expository prose. Applicants who earned their undergraduate degrees more than 10 years prior to application for this program must be interviewed by the director of the program. Admission for fall semester only. Deadline: February 1.
<b>Criminal Justice (MA)</b>	GPA 3.000 overall; brief autobiographical statement describing particular interests, experiences, and goals related to academic and professional work in criminal justice; contact information for two people acquainted with applicant's background and potential to serve as references.
<b>Data Science (MS)</b>	3.000 GPA; bachelor's degree in computer science or any related engineering discipline, with prior coursework completed in programming, linear algebra, statistics and data structures. Students who have a bachelor's degree in other quantitative disciplines (mathematics, physics, etc.) with demonstrated quantitative skills (calculus, linear algebra, etc.) and proficiency in computer programming may be admitted on a conditional basis.
<b>Earth, Environmental, &amp; Physical Sciences (MS)</b>	Bachelor's degree in any field of natural sciences, or acceptable coursework in natural sciences.
<b>Educational Leadership</b>	
Master of Education (MEd)	GPA 3.000 in last 60 credit hours; three Reference Report Forms from supervisors and/or professional peers (at least one must be from a supervisor attesting to the applicant's potential as a building administrator); evidence of three years of experience in a state-accredited school while holding a professional level teaching, school specialist or clinical license, or a full vocational-technical certificate; a resume or curriculum vita of educational and professional experience; a brief statement of professional goals related to completion of the master's degree and/or certification as a school administrator; and a letter signed by a building principal indicating s/he is willing to serve as the student's mentor and will allow the student to fulfill the practicum requirement of the program. Criminal background check will be required after admission.

Doctor of Education (EdD)	Two tracks are available: educational leadership and educational psychology. Admission requirements, deadlines and start dates vary depending upon track. GPA 3.500 in all graduate credit hours; evidence of three years of formal experience in P-12, higher education, educational organizations or other organizations (industry, not-for-profit) (required for educational leadership track only); at least three letters of recommendation from supervisors and/or professional peers that attest to the applicant's potential for success as an educational leader; a current resume or curriculum vita of educational and professional experience; a brief, one-page statement of professional goals related to the completion of the doctoral degree in educational leadership – specifically their chosen track; and a sample of academic writing (such as a published article or paper written for a graduate-level course). Applications accepted until May 1 for summer admission (ed leadership track) and August 1 for fall admission (ed psychology track). Late applications may be accepted at program discretion if space permits. Criminal background check will be required after admission.
<b>Educational Psychology (MEd)</b>	Applicants must meet at least <b>one</b> of the following three conditions: (1) A GPA of 3.000; or (2) GRE scores of 150 or higher for each GRE subsection (Verbal and Quantitative), and a score of 4.0 or higher on the Analytical Writing subtest; or (3) A score on the Miller Analogies Test equal to the national mean at the time of taking the test (400). In addition, applicants must submit a resume, contact information for three people to provide references, statement of professional goals; statement of research interests. Criminal background check will be required after admission.
<b>Electrical and Computer Engineering (MS)</b>	BS in electrical or computer engineering, or a related area; overall GPA of 3.000; GRE is required for those whose degree is from institutions outside the U.S. Statement of purpose and/or two letters of recommendation are optional but encouraged, especially if the GPA and/or GRE do not truly reflect the applicant's skills and/or abilities.
<b>Electrical Engineering and Computer Science (PhD)</b>	Completed bachelor's or master's degree with a GPA of at least 3.250 in electrical engineering, computer science or a related field; Official GRE scores; evidence of ability to carry out independent research and present it in written English is highly desirable; two letters of recommendation and a statement of purpose are highly encouraged. Each applicant is evaluated individually. In addition to the previously listed requirements, applicants with a bachelor's degree will only be admitted to the PhD program if an EECS faculty member judges them as exceptional, and is willing to be their PhD advisor from the beginning of the program.
<b>Engineering Management (MEM)</b>	GPA 3.000; UG major in engineering, science, business or related field; satisfactory completion of MATH 144 (Business Calculus) or MATH 242 (Calculus I) and IME 255 (Engineering Economy) or FIN 340 (Financial Management I). Department prefers and strongly recommends the GRE.
<b>English (MA)</b>	GPA 3.000 in English coursework; 24 credit hours of relevant English coursework; 500 word statement of purpose explaining the applicant's goals or reasons for pursuing an MA in English as well as their skills, accomplishments or experiences that suggest they will be able to succeed in the program.
<b>Exercise Science (MEd)</b>	No additional documents required for consideration; students may be required to complete the following prerequisites: CHEM 101 (Elementary Chemistry); HPS 229 (Applied Human Anatomy); HPS 313 (Exercise and Sport Nutrition); HPS 328 (Biomechanics/Kinesiology); HPS 490 (Exercise Physiology).
<b>Health Administration (MHA)</b>	Undergraduate degree in health management, business, clinical profession, or related field; 500-word or less personal goals essay clearly articulating the applicant's motivation for seeking admission to the MHA program (essay should include: (1) how seeking the MHA will help you advance personal/professional goals, and (2) describe your performance as an undergraduate student and explain how your experience as an undergraduate has prepared you to be a motivated, committed graduate student, ready to work in collaboration with your peers throughout the graduate program); current resume; two professional letters of recommendation from persons acquainted with the applicant's background and potential success in graduate studies. Deadlines – July 15 for fall admission, December 1 for spring admission.
<b>History (MA)</b>	GPA 2.750 overall; GPA 3.000 in all history coursework; undergraduate major in history or minimum of 18 credit hours of history coursework; one-page statement of purpose; and a writing sample of no more than 20 pages. Application deadlines: March 1 for GTA consideration for fall; August 1 for non-GTA consideration for fall; December 1 for spring consideration.
<b>Human Resource Management (HRM)</b>	Requires a minimum GPA of 2.750 in the last 60 credit hours of coursework (including any graduate coursework). Students with a lower GPA may apply with GRE or GMAT scores for consideration of probationary admission; Submit a statement that articulates the applicant's reason for seeking admission to the program (500 word maximum); Submit a current resume.
<b>Industrial Engineering</b>	
Master of Science (MS)	GPA 3.000; undergraduate degree in engineering, science, business or other related discipline; satisfactory completion of MATH 243 (Calculus II) and IME 255 (Engineering Economy). Department prefers and strongly recommends the GRE.

Doctor of Philosophy (MS to PhD)	Official GRE scores; GPA 3.250 in all graduate hours; statement of purpose indicating research interests and evidence of the ability to carry out independent research and present it in written English is highly desirable; two letters of recommendation; must have completed the following courses or their equivalents: IME 255 (Engineering Economy), MATH 344 (Calculus III); and a natural science course equivalent to that of the undergraduate engineering requirement; must have programming competence in at least one of the following languages: C, C++, or Visual BASIC; must have earned or be about to earn a master's degree in engineering, physical sciences, or other related discipline.
Doctor of Philosophy (BS to PhD)	Direct admission from the BS is offered for truly exceptional students to the PhD program. Applicants must have consistent and exceptional credentials throughout all their academic career, including: An undergraduate degree in engineering, physical science or other related discipline; A minimum GPA of 3.500/4.000 during the final 60 credit hours of coursework; and a letter of endorsement for admission from an ISME graduate faculty member (this requirement reflects the willingness of an ISME graduate faculty member to serve as the research advisor for the applicant upon admission). All other minimum requirements for admission into the PhD in industrial engineering program must also be met.
<b>Innovation Design (MID)</b>	Applicants should submit a resume and a statement of purpose, also, they may include in their application any credentials they believe represent their accomplishments and help explain why they wish to join the MID program. A personal interview will be scheduled with the admission committee if minimum qualifications are met. Deadlines: June 1 for fall, September 1 for spring, February 1 for summer.
<b>Learning and Instructional Design (MEd)</b>	Show potential to do graduate work by meeting <b>one</b> of the following: (1) be a graduate of the WSU teacher education program with at least a 2.750 GPA, or (2) be a graduate from an NCATE accredited program with at least a 3.000 GPA, or (3) GPA of at least 2.750 AND a score at least 152 in Verbal reasoning and 153 in Quantitative reasoning on the GRE, or (4) provide alternative evidence of academic aptitude. All applicants must also provide evidence of involvement in teaching, and/or program design, or receive a recommendation by the graduate program committee. Criminal background check will be required after admission.
<b>Management Science and Supply Chain Management (MS)</b>	Applicants must possess an undergraduate degree in business, engineering, science or related field. GPA of 3.000 overall or in the last 60 credit hours (whichever is better) of undergraduate coursework and in all graduate coursework. Students with lower GPAs may submit GMAT or GRE scores for consideration of admission on probation. GRE/GMAT not required, but is preferred for all candidates. Submit personal goal statement, which clearly articulates the applicant's reason for seeking admission to the program (500 word maximum). Deadlines – May 1 for fall and October 1 for spring.
<b>Mathematical Foundations of Data Analytics (MS)</b>	3.000 GPA in mathematics and computer science courses; equivalent of an undergraduate major in mathematics.
<b>Mathematics</b>	
Master of Science (MS)	GPA 3.000 in all mathematics courses; undergraduate major in math or equivalent.
Doctor of Philosophy (PhD)	GPA 3.000 overall (3.250 in all graduate credit hours if applicant holds master's degree) and 3.250 in mathematics and statistics. Undergraduate degree in mathematics, statistics, or physics, including coursework in advanced calculus, linear algebra, numerical methods, and either modern algebra or mechanics, electromagnetism and quantum physics. GRE subject test in Mathematics or Physics is recommended but not required.
<b>Mechanical Engineering</b>	
Master of Science (MS)	A calculus-based engineering degree (including differential equations, and physics courses with lab) or equivalent, with an overall GPA of 3.000 on 4.000 scale; GRE strongly recommended; statement of interest and two academic reference letters corroborating the applicant's undergraduate background; depending upon chosen concentration area, students may have to complete prerequisite coursework.
Doctor of Philosophy (MS to PhD)	GPA 3.250 in all graduate credit hours; master's degree in mechanical or closely related engineering or physical sciences; GRE scores taken within two years of the application submission; evidence of ability to carry out an independent research problem and present it in written English is required; submission of two letters of recommendation; a statement of purpose indicating applicant's research interests. Prerequisites include ME 662 (Senior Capstone Project), MATH 555 (Differential Equations I), and a natural science course sequence equivalent to that in a typical ABET undergraduate engineering program. In addition, students must have programming competence in at least one of the following languages: C, C++, or MATLAB.

Doctor of Philosophy (BS to PhD)	The mechanical engineering department offers direct admission to the PhD program for truly exceptional students who have earned a bachelor's degree. Applicants must have consistent and exceptional credentials throughout their academic career – including a program GPA equivalent of 3.500/4.000 or higher in an undergraduate mechanical or closely related engineering program. A minimum combined GRE score of 310 or greater in Verbal and Quantitative skills and a minimum score of 3.5 in Analytical Writing skill are required; applicants are expected to demonstrate proven undergraduate research experience. All other application requirements of the PhD program, such as a statement of purpose and two professional reference letters, and undergraduate prerequisites are required.
<b>Music (MM)</b>	Options include: opera, piano accompanying, chamber music, piano pedagogy, instrumental conducting, history/literature, composition, performance. Requires an accredited bachelor's degree in music (or equivalent) in the area of specialization. Individual options may have additional requirements for admission; consult the graduate program coordinator for specific details. Performance areas will require candidates to complete a satisfactory audition in their performance area of specialization. All areas will require applicants to submit contact information for three people to provide letters of recommendation.
<b>Music Education (MME)</b>	Options include: choral, elementary, voice, instrumental, special education, instrumental conducting. Requires BME or equivalent. Students holding bachelor's degrees in music other than the Bachelor of Music Education must satisfy public school certification requirements to qualify for full admission. Applicants without such certification are admitted on a conditional basis pending their attainment of public school teaching credentials. All areas will require applicants to submit contact information for three people to provide letters of recommendation.
<b>Nursing</b>	
Nursing (MSN)	Bachelor's degree with a major in nursing from NLN or CCNE accredited school; GPA of 3.000 in last 60 credit hours of nursing undergraduate coursework; RN licensure in the state in which the applicant practices; professional liability insurance; computer literacy and electronic database literature searching skills; evidence of meeting technical standards as identified by the WSU School of Nursing; background check is required. Admission for fall semester only — application deadline May 1.
Nursing Practice (BSN to DNP)	For students entering following the award of the Bachelor of Science in Nursing (BSN) degree: a GPA of 3.000 in all undergraduate coursework, all undergraduate nursing courses, and graduate-level courses taken, the following four science courses taken with an overall GPA of at least 3.000 and no grade that generates less than 2.000 credit points per credit hour in any one course: anatomy/physiology, microbiology, pathophysiology and pharmacology; BSN from a nationally accredited nursing program (NLN or CCNE); RN licensure in Kansas; an approved graduate statistics course taken within the past six years; professional liability insurance; technical standards must be met; computer literacy is an expectation, and computer skills should include word processing, email, file attachments and internet searches. If courses require Blackboard, students are encouraged to complete the Blackboard orientation. Students may elect to complete PC 105 or another basic computer skills course to fulfill the computer literacy expectation. Admission for fall semester only – application deadline is May 1.
Nursing Practice (MSN to DNP)	For students entering the postmaster's following the award of a master's degree in nursing from an accredited institution, a GPA of 3.250 or higher in all master's work is required; APRN licensure in Kansas and/or other authorized online states; proof of or eligibility for national certification as a nurse practitioner or clinical nurse specialist; some latitude may be given in the following GPA requirements on an individual basis (3.000 or higher in the following areas): (a) all undergraduate coursework, (b) all undergraduate nursing courses, (c) any graduate-level courses taken, (d) the following four science courses taken with an overall GPA of at least 3.000 and no grade that generates less than 2.000 credit points per credit hour in any one course: anatomy/physiology, microbiology, pathophysiology and pharmacology. Admission for postmaster's applicants will be to the practice specialization area in which their nursing master's degrees were completed. Admission is for spring semester only. Deadline is October 15.
<b>Physical Therapy (DPT)</b>	Visit program website for admission requirements and deadline information: <a href="http://wichita.edu/PT">http://wichita.edu/PT</a> ( <a href="http://wichita.edu/PT/">http://wichita.edu/PT/</a> ).
<b>Physician Assistant (MPA)</b>	View program website for admission requirements and deadline information: <a href="http://wichita.edu/PA">http://wichita.edu/PA</a> ( <a href="http://wichita.edu/PA/">http://wichita.edu/PA/</a> ).
<b>Physics (MS)</b>	Requires 24 credit hours of undergraduate physics, including 3 credit hours mechanics and 3 credit hours of electricity and magnetism.
<b>Psychology (PhD)</b>	
Clinical, Community, Human Factors	GRE (general); 3.000 GPA; contact information for three professional references; personal essay; supplemental information (honors, scholarships, employment history, etc.); professional article sample (articles, presentations, projects, etc.). Fall admission only; deadline for community and human factors: January 15; deadline for clinical: December 1.

<b>Public Administration (MPADM)</b>	GPA 3.000 in the last 60 credit hours of coursework; letter of application outlining applicant's career plans and how the MPA degree would further their plans; resume including work and volunteer experience; contact information for two references; intermediate level of skill (or better) with word processing, spreadsheet and presentation software programs. Admission is on a rolling basis but the deadline for consideration for an assistantship or fellowship is February 15 for fall semester.
<b>School Psychology (EdS)</b>	Applicants may enter the program from either a bachelor's or master's degree program. For all candidates, there are three ways of determining academic competence for entry into the program. Applicants must meet at least <b>one</b> of the following conditions: (1) A GPA of 3.000; or (2) GRE scores of 150 or higher for each GRE subsection (Verbal and Quantitative), and a score of 4.0 or higher on the Analytical Writing subtest; or (3) A score on the Miller Analogies Test equal to the national mean at the time of taking the test (400). Applicants must submit names and addresses of three (3) persons from whom the program may request letters of reference, who know the applicant professional or academically and have some basis for commenting on his or her probable success as a school psychologist; resume; a one-page statement of applicant's professional goals; writing assessment. An interview (either in person, or remote) will be required. Criminal background check will be required after admission. Application deadlines: March 15 for summer or fall admission; October 15 for spring admission.
<b>Social Work (MSW)</b>	2.750 GPA; baccalaureate degree from an accredited four-year institution; evidence of a liberal arts background from an accredited institution prior to enrollment. Applicants should be knowledgeable about and committed to the advancement of diversity, humanistic values and ethics, resolving social problems, improving social conditions and understanding factors shaping human behavior. Submit completed online application to the Graduate School including uploading the MSW Program Application and Personal Narrative. Deadline: 5pm on the 2nd Friday in January for fall admission.
<b>Sociology (MA)</b>	GPA 3.000; college algebra; minimum of 12 credit hours in social science courses, including an introduction to sociology course, social statistics, research methods and one theory course; three letters of recommendation from professors who are familiar with the student's undergraduate coursework; a typed, double-spaced statement of purpose (approximately 500 words) articulating the student's area of research interests and academic/career goals. Deadline: March 1 for fall.
<b>Spanish (MA)</b>	GPA 3.000 in Spanish courses; for non-native speakers, 24 credit hours undergraduate Spanish beyond basic language courses (8 credit hours at junior/senior level); for native speakers, 12 credit hours at junior/senior level. Students with degrees in non-Spanish majors should demonstrate knowledge of the language and of a set of basic analytical tools within the humanities.
<b>Special Education (MEd)</b>	
High Incidence, Low Incidence, Early Childhood Unified	GPA 3.000 <b>or</b> 2.750 GPA and acceptable GRE (required scores: Verbal 152 / Quantitative 153); eligible for Kansas teaching certificate; applications reviewed upon receipt. Criminal background check is required after admission.
High Incidence Alternative Certification	Signed documentation from a building or district administrator confirming the applicant has worked as a paraprofessional for at least one year; letter of recommendation from building/district administrator that highlights the applicant's strengths as an educator, and the school district's commitment to mentoring. Criminal background check is required after admission.
<b>Sport Management (MEd)</b>	Candidate evaluations are based on one of two options: (1) minimum 2.750 GPA in last 60 credit hours and faculty evaluation based on letter of application, resume, and three reference reports; or (2) minimum 2.750 GPA in last 60 credit hours, cumulative score for the verbal and quantitative sections of the GRE, and faculty evaluation based on letter of application, resume, and three reference reports.
<b>Teaching (MAT)</b>	
Early Childhood Unified Residency	BA/BS from accredited higher education institution; GPA 3.000 (or 2.750-2.990 to be admitted on probation). Criminal background check will be required after admission.
Transition to Teaching	Recommend that interested students contact the program before applying to ensure eligibility. 2.750 GPA in last 60 credit hours of coursework; BA/BS from an accredited higher education institution in the content area eligible for restricted licensure (or equivalent coursework in content area); receive passing score on PRAXIS Subject Assessment exam for restricted licensure area; secure a teaching contract in an accredited school district.

Applicants whose native language is not English may also be required to demonstrate English proficiency, in the form of official scores on the TOEFL, IELTS or PTE-Academic. Please refer to the international admissions section of the catalog for details about the English proficiency requirement (p. 24).

<sup>1</sup> Link opens new window.



## Graduate Certificate Programs

Please see the program sections of the Graduate Catalog for specific details about each certificate program offered.

Certificate	Department	Certificate Description
Additive Manufacturing	Industrial Engineering/ Mechanical Engineering	A 12-credit-hour program focusing on key materials, technologies and benefits. Includes topics on design considerations, post processing, secondary operations, and important quality and safety factors.
Advanced Business Fundamentals	Business	A 12-credit-hour program designed to provide individuals with business knowledge to handle day-to-day business operations, manage workplace issues, and improve business processes. The certificate provides advanced knowledge on major disciplines within the field of business. The business knowledge acquired through the certificate will be applicable immediately on the job. This certificate is available both online and in a hybrid format.
Advanced Composite Materials	Interdisciplinary	A 12-credit-hour program aimed at equipping students with the knowledge of advanced composites including materials and processes, manufacturing, and structural analysis and design.
Aging Studies	Public Health	A 15-credit-hour online program designed to allow graduate students and working professionals to expand their knowledge in the fundamental concepts of aging, to better serve an aging population they frequently encounter. The GCAGE prepares students in aging-specific areas of health communication, navigating the Medicare system, biological process, public health priorities and interprofessional perspectives.
Applied Behavior Analysis	Education	An 18-credit-hour program that prepares a variety of school and community professionals with the knowledge and experience needed to better understand human behavior and to positively impact a wide spectrum of individuals with specific behavioral needs.
Biomaterials and Tissue Engineering	Biomedical Engineering	A 12-credit-hour program designed to provide advanced courses related to biomaterials and tissue engineering.
Building-Level Leadership/Principal <sup>1</sup>	Educational Leadership	A 15-21 credit hour program whose goal is to provide a path for students who currently have a master's degree in an education-related field (e.g. curriculum and instruction, school counseling, etc.) and are currently employed in preK-12 education to be recommended for building licensure.
Business Analytics	Business	A 12-credit-hour program designed to provide students with exposure to a variety of data management approaches, analytical and statistical methods, and analytical tools used in the industry to run and manage analytics programs. Provides extensive exposure on concepts, tools and applications in the domain of analytics. In addition to providing hands on training on various tools, the program will impart skills on creating and maintaining a culture of evidence/fact-based decision-making.
Business Fundamentals	Business	A 12-credit-hour online program designed to provide individuals with business knowledge to handle day-to-day business operations, manage workplace issues, and develop positive business relationships. The program provides an introduction to the major disciplines within the field of business, and the opportunity to quickly gain business knowledge that is applicable immediately on the job.
Child/Play Therapy	Education	A 15-credit-hour postmaster's certificate program designed to meet training standards for play therapists established by the Association for Play Therapy.
City and County Management	Public Administration	A 12-credit-hour program offering advanced study in the management of city and county government. This certificate is available both online and on ground.
Clinical Mental Health Counselor to School Counselor	Education	A 12-credit-hour program which provides a path for students, who currently have their clinical mental health counseling degree, to obtain coursework to apply for an additional license as a school counselor.
Computational Data Science	Electrical Engineering and Computer Science	A 12-credit-hour program designed for graduate students and professionals who are enrolled in related fields and who are wishing to gain training in this focused topic of Data Science.
Computer Networking	Electrical Engineering and Computer Science	A 12-credit-hour program designed for information technology professionals and graduate students enrolled in related fields who are wishing to gain training in this focused topic.
Economic Development	Public Administration	A 12-credit-hour program offering advanced study in economic development by state and local governments. This certificate is available both online and on ground.

Engineering Education	Education/Engineering	A 12-credit-hour program designed to provide engineering graduate students with: (1) knowledge of contemporary learning theories that can be applied to university-level instruction; (2) knowledge and skills in classroom testing and program evaluation; (3) knowledge of pedagogical skills that can be applied to university-level instruction; (4) the skills to apply knowledge of learning theory, pedagogical theory and measurement theory in an authentic university setting. Offered jointly with the College of Engineering.
English Literature and Composition Pedagogy	English	A 12-credit-hour online program comprising a variety of courses within the English discipline emphasizing coursework appropriate to high school educators.
Entrepreneurship and Innovation	Management	A 12-credit-hour program aimed at providing students the knowledge base in entrepreneurship to undertake moving technological expertise or high potential business ideas through the start-up of high growth businesses. Provides extensive conceptual and applied know-how and expertise to students interested in entrepreneurship.
Foundations of Six Sigma and Quality Improvement	Industrial Engineering	A 12-credit-hour program primarily for graduate students with industrial affiliation who are interested in enhancing their skills in quality management and Six Sigma methodology.
Functional Aging	Human Performance Studies	A 12-credit-hour program of study of the nature and scope of the physiological aspects of aging and issues related to designing the environment for older adults.
Great Plains Studies	Interdisciplinary	A 15-credit-hour, interdisciplinary program for professional or personal enrichment. This certificate is for students interested in taking a concentration of courses from a number of disciplines focusing on a common topic, the Great Plains.
Health Administration	Public Health	A 15-credit-hour online program that prepares students in areas of health care leadership, operations management, strategic planning, health care policy, law and ethics, and trends in the health care delivery system.
Higher Education Leadership Educational Leadership		A 15-credit-hour program designed to prepare current and prospective college or university staff members for entry- or mid-level positions as administrators in two- and four-year colleges and universities; policy makers and student affairs professionals in higher education; and to provide selected coursework/degrees for individuals currently in the field.
Hispanic Cultural Studies	Modern and Classical Languages and Literatures	A 12-credit-hour program designed to allow students to advance their knowledge and skills of cultural analysis. This certificate is for students interested in research and teaching that investigates the ways in which culture transforms human beings, literature and language, and social structures. The program combines interdisciplinary approaches in order to understand Hispanic culture.
Human Resource Management Decision Making	Management	A 15-credit-hour online program designed for individuals who are currently working and need training in human resource analytics, rewards and strategic HRM.
Human Resource Management Skills	Management	A 15-credit-hour online program designed for individuals who are currently working and need training in human resource selection, talent development and employment law.
Information Assurance and Cybersecurity	Electrical Engineering and Computer Science	A 12-credit-hour program designed for information technology professionals and graduate students enrolled in related fields who are wishing to gain training in this focused topic.
Instructional Design in Professional Practice	Education	A 15-credit-hour program designed to provide students with the skills and knowledge needed to design and implement effective, efficient and engaging instruction, from assessing learners' needs to designing/developing appropriate materials and to evaluating instruction. Students will be able to apply learning theories, instructional design models and principles, and experiences gained through coursework to lead the instructional design process in diverse organizational settings.
Interdisciplinary STEM Education <sup>1</sup>	Education	A 12-credit-hour program designed for graduate students interested in designing and/or teaching an interdisciplinary STEM curriculum.
Kodaly Method	Music Education	A 15-credit-hour program to be completed over three summers, this certificate trains elementary and secondary music educators in comprehensive music literacy to improve their ability to teach basic musical skills and the reading and writing of music. The program uses an experience-based approach to teaching, integrating many of the best ideas, techniques and approaches to music education.
Lean Systems	Industrial Engineering	A 12-credit-hour program of advanced knowledge and methodology of lean systems design, evaluation and operation for practitioners in industry who are responsible for the development and management of production systems in the workplace.

Literacy	Education	A 15-credit-hour program designed to allow educators to advance their knowledge and skills of teaching literacy in the classroom, and to integrate literacy into all content areas. Provides advanced study for teachers and educators seeking lead positions in buildings where literacy is a focus for federal legislation and state accreditation.
Mathematical Foundations of Mathematics Data Analytics		A 15-credit-hour program designed to equip students with skills and experience in solving an open ended, real-world data analysis problem—which they can apply in a wide range of data-related careers in the public, private and nonprofit sectors.
Mentoring and Coaching	Education	A 12-credit-hour online program designed to enhance the leadership qualities and skills of professionals who desire to effectively mentor and/or coach individuals in education and a variety of professional settings. Grounded in the latest research in mentoring and coaching, the program provides graduate students (from any discipline) the opportunity to obtain the skills and knowledge necessary to be effective mentors and coaches, in both virtual and physical contexts.
Museum Studies	Interdisciplinary	A 15-credit-hour program aimed at preparing students for careers in the museum field. Students gain an overview of museum practice including administration, collections, exhibits and presentation, and education.
Nano Engineering	Mechanical Engineering	A 12-credit-hour program that is designed for engineering and technology professionals and graduate students enrolled in related fields who wish to gain training in this focused topic. Students completing this certificate will have a strong understanding of the fundamentals of Nano Engineering as well as in-depth knowledge in critical and upcoming areas such as nanotechnology in computers and consumer electronics devices, drugs, automobiles, laser nano-built products, other nano-related manufacturing and new emerging nanotechnologies.
Nonprofit Management	Public Administration	A 12-credit-hour program offering advanced study in nonprofit management. This certificate is available both online and on ground.
Online Learning and Educational Technology	Education	A 12-credit-hour online program offering information and communication technology (ICT) education to educators, trainers and professional developers who wish to advance their knowledge of information technology in education, integrate technology into classroom instruction or professional setting, and use technology for communication and professional productivity. This certificate is also offered on ground.
Professional Studies in Music Performance <sup>1</sup>	Music	A one-year, 18-credit-hour course of study that addresses the needs of individuals preparing for performance careers. Emphasis available in Voice/Opera Performance.
Public Finance	Public Administration	A 12-credit-hour program offering advanced study in public finance. The program enhances student's career opportunities and provides public finance practitioners an avenue to improve their skills. This certificate is available both online and on ground.
Public Health	Public Health	A 15-credit-hour online program of core public health coursework covering principles and issues in health care policy and administration, the social and behavioral aspects of public health, epidemiology, environmental health and biostatistics. Students have the option to focus on coursework in health care policy and administration or public health and aging.
School Counselor to Clinical Mental Health Counselor	Education	A 12-credit-hour program that provides a path for students who currently have their school counseling degree to obtain coursework to apply for an additional license as a Licensed Professional Counselor (LPC).
Software Engineering	Electrical Engineering and Computer Science	A 12-credit-hour program designed to produce software engineers who will participate in and lead software development projects. Students completing this certificate will have a strong understanding of the fundamentals of software engineering as well as proficient skills in object-oriented methods, structured techniques, project management, and testing. The program is suited both to programmers seeking professional growth and to software engineers who want to learn the object-oriented paradigm.
Space Science	Mathematics, Statistics and Physics	An 18-credit-hour online program designed for students with a background in natural sciences or engineering to gain specialized education and experience in the space sector.
Spanish for the Professions	Modern and Classical Languages and Literatures	A 12-credit-hour program designed to prepare students for careers in the field of translation, interpretation, and other settings of applied Spanish. The certificate is designed to train students to become linguistically capable, knowledgeable and culturally sensitive individuals able to perform language services in professional settings where Spanish is used.
Special Music Education/ Adaptive Music	Music Education	A 13-credit-hour certificate that equips students with expertise in providing inclusive music services within their institutions, including music instruction for persons with special learning needs. The certificate is also an asset for professionals in related fields wanting to incorporate music in their practices.

Superintendency/District Leadership <sup>1</sup>	Educational Leadership	A 15-21 credit hour online program that provides an opportunity for potential candidates who currently hold a Kansas professional building leadership license to participate in advanced graduate training that leads to positions as a Superintendent, Assistant Superintendent, or Special Education Director, as well as other district-level positions required by school districts.
Supply Chain Management	Business/Industrial Engineering	A 12-credit-hour program that equips students with the skills and abilities to design and manage enterprise-wide supply chains. Offered jointly with the department of industrial engineering in the College of Engineering.
Systems Engineering and Management	Industrial Engineering	A 12-credit-hour program of knowledge and methodology so students can learn to apply systems concepts and techniques to the understanding, description, design and management of large-scale systems requiring the integration of information and human activity.

Certificate programs are not eligible for Title IV (federal financial aid) funding unless the certificate is part of the degree program being pursued or the certificate has been specified as a Gainful Employment (aid eligible) program.

<sup>1</sup> These certificates have been approved as Gainful Employment.

## Graduate School

Coleen Pugh, *dean*

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Graduate School Website (<http://wichita.edu/gradschool/>)<sup>1</sup>

Kerry Wilks, *associate dean*

Aaron Coffey, *assistant dean*

Denise Gimlin, *director of graduate operations*

The Graduate School at Wichita State University (WSU) supervises graduate study at the university, establishes standards for admission to graduate work and recommends students who have completed requirements for graduation.

The Graduate School provides opportunities to pursue advanced study in 50 master's programs, one educational specialist program, and 13 doctoral programs (nine PhD programs and four professional doctorates). The university is classified by the Carnegie Foundation as a doctoral granting research university (high research activity) and is an affiliate member of the National Association of Graduate and Professional Students. The university is also a member of the Council of Graduate Schools and the Midwestern Association of Graduate Schools.

The Graduate School operates according to bylaws approved by the graduate faculty. Current bylaws are available online (<http://wichita.edu/gfbylaws/>)<sup>1</sup>.

<sup>1</sup>Link opens new window.

### Graduate Study Defined

The graduate experience involves specialized knowledge and concentrated study in one area. In this respect it differs from undergraduate study, which introduces students to a wide range of subjects and develops general intellectual skills. That is, a graduate program is generally more focused on a specific area of interest and on accruing specialized skills to practice a profession or do advanced research. There are two primary types of graduate degrees: professional degrees and research degrees.

#### Master's Degree

At the master's level, a professional degree provides a specific set of skills needed to practice a particular profession. It is generally a final degree. The research master's provides experience in research and scholarship, and it may be a final degree or a step toward a doctoral degree.

Terminal projects associated with the completion of the master's degree provide evidence of understanding the discipline-specific inquiry methods, thinking critically about a problem, and producing a written document or creative work appropriate to the standards of the discipline.

Wichita State University's master's degrees include a minimum of 30 graduate hours and usually take one or two years of full-time study to complete. Students have 10 years to complete their degree. The professional master's degree often involves some type of internship or fieldwork. The research degree may involve writing a thesis or completing comprehensive exams.

The thesis is considered a scholarly contribution to knowledge evidencing research or creative capacity, independent thought, and the ability to interpret materials. In some cases it involves original research

or development of original works such as a painting or a manuscript in creative writing.

#### Doctoral Degree

The doctoral degree typically involves both coursework and a major research project. Students admitted to a doctoral program usually spend four to six years of full-time study completing their degree. Depending upon the field of study, the first two to three years involve classes, seminars, directed readings and directed research to provide a comprehensive knowledge of an academic field. During this time, students may also begin independent research projects.

Comprehensive knowledge in the field is assessed through the qualifying exam. On passing the qualifying exam, a student becomes a *candidate for the degree* and must be continuously enrolled every semester for a minimum of 2 credit hours of dissertation research.

As a candidate for a doctoral degree, a student works on a project that involves original research and reports on the research through the production of a dissertation. The dissertation is considered a substantial contribution to knowledge in which the student exhibits original scholarship and the ability to conduct independent research or creative works. Depending upon the field, the dissertation project may take one to two years to complete.

#### Graduate Certificate

A graduate certificate gives students the ability to learn professional skills through focused study in a specific area. Graduate certificates are awarded by departments, colleges and the Graduate School to recognize graduate-level accomplishment in a cluster of related graduate courses on a topic, skill, theme or method, as defined by the appropriate faculty. The courses serve as the student's record of coherent academic accomplishment. Graduate certificate programs are typically 12 to 15 credit hours. Graduate certificates are not degrees, concentrations, minors or certification programs.

### Graduate Council

The Graduate Council consists of the dean, associate and assistant deans of the Graduate School, eight members of the graduate faculty elected by the graduate faculty, one member appointed by the graduate dean, and one graduate student. The council determines and recommends general policies for the Graduate School.

In addition to being the elected representative of the graduate faculty, the Graduate Council serves as the Committee on Exceptions in an advisory capacity to the dean of the Graduate School. This responsibility may be discharged by the council acting as a committee of the whole, through subcommittees, or ad hoc committees consisting of selected members of the graduate faculty and graduate student body. Conclusions reached by the Graduate Council are transmitted as recommendations to the dean of the Graduate School.

The Graduate Council also serves as a committee on appeals if the student is dissatisfied with direct administrative action taken by the graduate dean. In such cases, the judgment of the council is final.

### Graduate Faculty

The graduate faculty consists of the university president, the provost and vice president for academic affairs, the dean of the Graduate School, deans of the academic colleges, dean of the Honors College, dean of the libraries, and regular faculty members nominated and approved for graduate faculty status.

Graduate faculty develop curricula, teach graduate courses, guide student research, mentor graduate students, participate in the

governance of graduate education, and determine criteria for graduate faculty membership.

Remaining current in one's discipline is a special responsibility of faculty who teach at the graduate level. In particular, research, scholarship, creative activities and performance serve as models for graduate students. What constitutes a program of original work varies considerably from discipline to discipline. Quantity is not the sole criterion, and may not even be a major criterion. However, periodic evidence that one's work has undergone independent peer review and is part of an ongoing scholarly agenda is expected. In some disciplines, graduate faculty are also expected to generate external funding through grants and contracts to support their research and scholarly activities as well as to support graduate students.

There are two categories of graduate faculty membership at Wichita State University. Candidates for graduate faculty membership must meet all department-specific criteria and the following university-specified eligibility criteria. All nominations for graduate faculty status must originate from a Wichita State University academic department. Nomination forms for initial appointment and renewal of appointment of graduate faculty status are available on the Graduate School webpage (<https://wichita.edu/gradschool/>)<sup>1</sup>.

A summary of university-specified eligibility requirements, and duties and responsibilities for each category of graduate faculty status is provided below. A detailed description is provided in Section 4.17 of the Policies and Procedures Manual (<https://wichita.edu/policies/>)<sup>1</sup>.

### **Graduate Faculty**

#### *Eligibility:*

- Possess the terminal degree in the discipline or its equivalent in training and/or experience (documentation is required when equivalency is claimed from a combination of training and experience)
- Be tenured or tenure-track WSU faculty with assistant professor or higher rank or meet established criteria for the academic unit

#### *Duties and responsibilities:*

- Teach graduate courses
- Serve on master's and doctoral committees
- Chair capstone (project, thesis and dissertation) committees
- Mentor graduate students

#### *Duration of membership in category:*

- Ongoing till separation from the university

### **Affiliate Graduate Faculty**

#### *Eligibility:*

- Meet a demonstrated departmental need
- Have earned a graduate degree or be qualified by education and/or professional achievement

#### *Possible duties and responsibilities:*

- Teach graduate courses
- Serve on and chair master's thesis and terminal committees for practice doctorates
- Serve on PhD dissertation committees
- Other duties as appropriate

#### *Duration of membership in category:*

- Appointment length suggested by chair of the department and approved by the dean of the Graduate School
- Membership may be renewed through the submission of a nomination form by the academic department recommending the appointment, which should document successful performance in the preceding term

### **Granting of Graduate Faculty Privileges**

Research productivity, scholarship and creative activities are best evaluated by graduate faculty at the departmental/college level. The Graduate School and Graduate Council provide oversight and due process for faculty seeking grievances in this matter, but the units are best equipped to make informed decisions regarding graduate faculty membership. Based on the rigorous process used to hire, review and promote faculty, all members of the tenure-track faculty are eligible for regular graduate faculty standing. The procedure below is to be used to identify nontenure track graduate faculty members.

Each graduate program, either individually or collectively by department and/or college, can establish regular graduate faculty criteria for nontenure track faculty. These criteria must be approved at the department, college and Graduate Council levels, and should be updated at least every five years.

#### ***Departmental/College Level***

Faculty who seek graduate faculty status for the first time are responsible for submitting a completed nomination form along with pertinent supporting information/documents to the department chair. The department chair will forward the candidate's material to the Departmental/College Graduate Faculty Status Committee (see below) for consideration. After the appropriate faculty status committee has reviewed, it will submit its recommendation to the chair who will send the nomination form (with supporting information/documents) to the academic dean with his/her own recommendation and signature.

Each department and/or college should have a committee (minimum of three members) composed of graduate faculty. Using the Graduate School's graduate faculty categories as a guideline, the college or department committee will submit criteria for each graduate faculty category to the graduate dean for approval. In order to stay current, departments/colleges will re-evaluate the criteria and submit them to the Graduate School every five years. The committee will also assess faculty who seek to have graduate faculty status (including re-appointment). A positive recommendation is defined by a simple majority vote, after which the nomination and supporting information are forwarded to their respective department chair or college dean. Faculty (including departmental chairs) whose material is under consideration cannot serve or vote on the departmental/college committee during consideration of the candidate's material.

The college dean has the right to request from the departmental/college committee additional justification in regard to the committee's vote or candidate's material. In the case of a positive vote by the college dean, the completed nomination form and supporting information/documents are forwarded to the Graduate School.

#### ***Graduate Dean and Graduate Council Level***

The graduate dean has the responsibility to evaluate and approve the departmental/college committee's criteria for each graduate faculty status. In cases where the graduate dean has a disagreement with criteria established by the departmental/college committee, the graduate dean may return the criteria to the departmental/college committee for

revision or further justification, and may also ask the Graduate Council for their recommendation.

The Graduate School will maintain records of current graduate faculty, including their status category and date of term completion (if applicable). The Graduate School will notify graduate faculty members (and their respective department chairs) whose terms will expire in a timely manner. Review/renewal would then occur at the departmental/college level by the end of the fall semester. In addition, the Graduate School will notify the chairs to nominate newly hired faculty if they wish them to have graduate faculty status.

Once the nomination form is received by the Graduate School, the Graduate School dean may elect to confirm or deny the requested graduate faculty status. The Graduate School dean may also forward the candidate's material to the Graduate Council for further discussion and recommendation. The Graduate School dean informs the faculty member and department chair of the final decision made regarding the granting of status.

#### ***Faculty Due Process***

Each level of review should occur in a timely manner. When a negative recommendation is made (at any recommendation level), the denied recommendation form (which includes the justification for denial) is returned to the candidate (including the candidate's materials), and a copy of the denied recommendation form is forwarded to bodies who previously granted approval.

Recommendations at all levels are based on a judgment of whether the faculty member meets the criteria set by the particular department or college. Faculty who receive a negative decision from the departmental or college committee, college dean, or Graduate School dean may petition the Graduate School dean to have their material reviewed by the Graduate Council. As part of their petition, faculty may elect to write a rebuttal to the vote justification of the departmental/college committee, college dean or Graduate School dean, and may include additional material in support of their grievance.

#### ***Revocation or Loss of Status or Suspension of Privileges Conditions Under Which Changes in Membership Status or Loss of Privileges May Take Place***

Membership status may be terminated or changed when an affiliate graduate faculty member no longer meets the eligibility requirements, or the affiliate graduate faculty member does not renew his/her membership. Nonrenewal of status, other than in cases of revocation or suspension of privileges may be appealed to the Graduate Council and the Graduate Council's disposition of appeal is final. Membership of either status may be revoked or privileges may be suspended in certain extreme cases, such as those of professional incompetence as a graduate faculty member, academic dishonesty, scholarly/scientific/creative misconduct, or gross failure to fulfill duties related to graduate faculty membership.

#### ***Procedure for Status Revocation or Suspension of Privileges***

Revocation of status or suspension of privileges of a graduate faculty member may only result from Graduate Council action following a complaint lodged with the graduate dean in writing, and only if the complaint includes appropriate documentation as evidence of cause for removal of status or suspension of privileges. The complaint will be investigated by a faculty committee formed by the Graduate Council (comprising at least three regular graduate faculty members). If further action on the complaint is deemed appropriate by the investigating committee, the Graduate Council will make the final decision about the action to be taken. The accused graduate faculty member will have the

right to a hearing before the investigating committee and the Graduate Council.

A complete listing of graduate faculty is available on the Graduate School web page and in the Graduate School office. Students are advised to consult this list when selecting faculty advisors for theses and dissertations.

<sup>1</sup> Link opens new window.

## **Faculty Restriction**

Faculty members of WSU who hold the rank of assistant professor or higher cannot earn graduate degrees from Wichita State except for unassigned faculty (not attached to a particular college) or faculty members granted specific approval by the Graduate Council. Full-time faculty members may not pursue more than 6 credit hours of graduate credit per semester.

## **Graduate Coordinators**

The Graduate School works closely with individual program areas to ensure that program operations function in compliance with Graduate School policies and regulations. As part of this process, a graduate faculty member is recommended by his or her department chair to the graduate dean for appointment as the graduate coordinator, to serve as the program representative to the Graduate School in matters of graduate education.

Although the nature of graduate coordinator appointments and responsibilities varies, graduate coordinators are charged with the responsibility for overseeing the evaluation of applications for admission and the transmittal of departmental recommendations for admission, academic performance, degree completion and exceptions to graduate school regulations.

Graduate coordinators also have a primary role in coordinating information between their programs and the Graduate School office, working with their departmental chairs or other administrators in maintaining the quality and viability of their graduate programs, and serving as the local agent for the graduate faculty in their program areas.

Graduate coordinators may also serve on graduate committees in their programs or academic colleges.

## Admission to Graduate Study

In order to receive graduate credit at Wichita State University, students must be admitted to the Graduate School. Two admission statuses, degree and nondegree, are available to accommodate qualified students desiring to pursue graduate degrees as well as those simply desiring to earn graduate credit for personal and professional reasons.

To be considered for degree or nondegree graduate status, students must apply online (<http://wichita.edu/apply/>)<sup>1</sup> and submit all required materials, including the application fee. The online application will require uploading copies of official transcripts to be used for admission consideration. Admission consideration to graduate programs at Wichita State University requires the completion of a bachelor's degree from a regionally-accredited institution, or its overseas equivalent.

The Graduate School at Wichita State University considers each applicant holistically for admission to its various programs. While baselines are set to aid departments in making decisions, additional factors will be considered when reviewing each application. These considerations include experience, recommendations, test scores and even program capacity. Unless otherwise indicated for a specific program or degree level, the GPA baseline for graduate admission is 2.750. Unless otherwise specified, required application materials will be uploaded or entered through the online application portal.

Students who are offered admission are required to submit official transcripts from institutions where a bachelors degree was earned AND any institution with completed graduate coursework in order for their admission to be finalized. To be considered official, transcripts from U.S. Institutions must meet one of the following requirements:

- Sent directly by mail from the institutions where the academic credit was earned to the mailing address below.
- Sent directly through an e-transcript vendor by the institutions where the academic credit was earned to [grad.transcripts@wichita.edu](mailto:grad.transcripts@wichita.edu).
- Sealed, official issued-to-student transcripts that are in envelopes sealed by the issuing institutions where academic credit was earned.

Official transcripts of work completed at Wichita State University (or transferred to Wichita State University) does not need to be sent to the Graduate School. WSU staff will be able to access those transcripts.

To be considered official, transcripts and degree/provisional certificates from institutions outside the United States must bear an original stamp or seal from the issuing university or college. Plain copies and/or notarized copies are not acceptable. Original transcripts, degree/provisional certificates are not required, however, photocopies must be attested and include an original signature and stamp or seal in English from the issuing university or college.

The review criteria of student credentials for both domestic and international applicants are equivalent; differing only to account for variations in how the academic work is recorded.

Credentials other than official transcripts will be considered only for application as a visiting guest student or nondegree, Category B student. Please refer to the Levels of Admission (p. 23) section regarding the details of these options.

Postal Mailing Address:

The Graduate School  
Wichita State University  
1845 Fairmount, Box 4

Wichita, KS 67260-0004

Mailing Address for items sent using an express mail service:

Wichita State University  
1845 Fairmount  
Jardine Hall, Room 107  
The Graduate School, 316-978-3095  
Wichita, KS 67260-0004  
USA

<sup>1</sup> Link opens new window.

## Admission Application

Applications for graduate study are made through the Wichita State University Graduate School regardless of the program. In addition to the Graduate School's application, certain program areas will also require a program application.

All application materials in the student record (at the Graduate School and departmental levels) may be reviewed by the applicant upon request, except recommendation forms/letters where the applicant has waived his or her right to see the recommendations.

An admission to the Graduate School remains valid only if a student enrolls and completes at least one class as a graduate student within one calendar year of the admission semester. However, students admitted to the physician assistant, physical therapy or other professional programs must enroll the semester of admission in order for the admission to remain valid.

Students who wish to change from one graduate program to a new graduate program must submit a new online application, application fee and any required departmental materials. Unlike at the undergraduate level, graduate students must be admitted to a new program; they cannot simply transfer between graduate programs.

Students may apply to more than one program at a time, but may be admitted to only one program.

*Note:* Application requirements, including application fees, deadlines and required materials are subject to change. Please refer to the Graduate School website (<https://wichita.edu/gradschool/>)<sup>1</sup> for the most up-to-date information.

### Admission Application Fee and Deadlines

All applicants to the Wichita State University Graduate School must pay a nonrefundable application fee each time an application is submitted.

The following are deadlines for submission of complete application materials for all applicants seeking on-time registration, except those applying for admission to programs that have specific deadlines. Please refer to the Graduate School website deadlines page (<https://www.wichita.edu/GradSchoolDeadlines/>)<sup>1</sup> for the most up-to-date information.

#### Graduate School Application Fees and Deadlines

Applicant Type	Fall Deadline	Spring Deadline	Fee
US Citizen or Permanent Resident	Priority: July 15	Priority: December 1	\$60
International Student	Priority: March 1 Secondary: April 30	Priority: August 31 Secondary: September 30	\$75 \$135
	Late Submission	Late Submission	\$175

International Readmission and Deferral Fee	\$75
Graduate Badge Application Fee	\$10

Applications may be submitted at any time and reviewed for admission. Applicants ineligible for entry into their selected term due to late submission may be admitted to a future term, as determined by the admitting program, or denied admission.

*Note:* In cases where the departmental deadline is earlier than the Graduate School deadline, applicants must meet the departmental deadline. If the departmental deadline is later than the Graduate School deadline, the applicant must meet the Graduate School deadline.

Records required for admission to programs without application deadlines, and from applicants not requiring visa status, should reach the Graduate School by the published Graduate School application deadline for the semester in which admission is desired. Materials received after this date will be processed as the time of staff and faculty permits, but the Graduate School cannot guarantee that final action can be taken in time to allow enrollment for graduate credit in the chosen term.

Because of possible limitations in the number of faculty and available facilities, there are restrictions on the number of students admitted to some graduate programs. These limits may prevent some qualified students from being admitted. Since programs with enrollment limitations generally take action on new applicants in February or March for fall admission, early application is recommended. Preference is usually given to degree-seeking applicants.

### Admission Preparation

Applicants with bachelor's degrees in programs in which credit was awarded for experiences which were outside the control of a regionally accredited educational institution, for example, credit for life experience, may be viewed by some programs as inadequately prepared to undertake graduate study. In such instances, admission to the Graduate School may be denied or approved with prerequisite coursework assigned to fill the deficiencies.

<sup>1</sup> Link opens new window.

## Admission Requirements

Application requirements, including application fees, deadlines and required materials are subject to change. Please refer to the Graduate School website (<https://wichita.edu/gradschool/>)<sup>1</sup> for the most up-to-date information.

### Degree Admission

To pursue a graduate degree at WSU, students must be admitted to the specific program for which they are seeking a degree. Students may not be admitted to more than one degree program at a time. The Graduate School at Wichita State University considers each applicant holistically for admission to its various programs. While baselines are set to aid departments in making decisions, additional factors will be considered when reviewing each application. These considerations include experience, recommendations, test scores and even program capacity. Unless otherwise indicated for a specific program or degree level, the GPA baseline for graduate admission is 2.750.

### Specialist and Master's Programs

Applicants for full-standing degree admission to the specialist and master's programs typically must have:

1. Earned a bachelor's degree from a regionally accredited institution or a recognized institution in another country whose requirements for the bachelor's degree are substantially equivalent to a U.S. bachelor's degree. The basis on which credits are awarded for the bachelor's degree must be consistent with the policies and procedures for the award of such credit at Wichita State; and
2. Achieved a grade point average of at least 2.750 from a U.S. institution, or its equivalent from a foreign institution, including any postbachelor's graduate work, and no more than 9 credit hours of background deficiencies in the desired field of graduate study. In certain instances, the GPA may be based on the last 60 credit hours of coursework (or nearest semester or term break to this). Many departments require a higher minimum grade point average.<sup>2</sup>

Although an entrance exam is not a requirement for admission to the Graduate School, certain program areas may require an entrance exam. Applicants should refer to the program and admission requirements (p. 5) table to determine if a specific program requires an entrance exam.

See Entrance Exam Contact Information (p. 25).

### Doctoral Programs

Applicants for full-standing degree admission to the doctoral programs typically must meet the following requirements:

1. Hold a bachelor's degree from a regionally accredited institution or a recognized institution in another country whose requirements for the bachelor's degree are substantially equivalent to a U.S. bachelor's degree. The basis on which credits are awarded for the bachelor's degree must be consistent with the policies and procedures for the award of such credit at Wichita State.
2. Typically, applicants must meet the GPA requirement as explained below.
  - a. For programs where the minimum requirement for admission is the bachelor's degree, students must achieve a grade point average of at least 3.000 from a U.S. institution, or its equivalent from a foreign institution, including any postbachelor's graduate work. In certain instances, the GPA may be based on the last 60 credit hours (or nearest semester or term break to this).
  - b. For programs where the minimum requirement for admission is the master's degree, students must achieve a grade point average of at least a 3.250 from a U.S. institution, or its equivalent from a foreign institution in *all* graduate-level coursework.
3. A student may have no more than 9 credit hours of background deficiencies in the desired field of graduate study.

Although an entrance exam is not a requirement for admission to the Graduate School, certain program areas may require an entrance exam. Applicants should refer to the program and admission requirements (p. 5) table to determine if a specific program requires an entrance exam.

### Nondegree Admission

Persons who already possess a graduate degree, who do not want to seek an additional graduate degree at this time, or who wish to take graduate courses for professional advancement or personal satisfaction, should apply for nondegree admission. Students originally admitted to a nondegree category may later apply for degree admission. A maximum

of 12 credit hours of graduate credit taken while in a nondegree category — not including courses leading to a graduate certificate — may be counted toward a degree program, provided students have obtained the approval of their major department and the graduate dean, through submission and approval of the plan of study.

#### **Nondegree, Category A**

Admission to this category provides students the opportunity to take any level of graduate coursework for which they have the prerequisites. Nondegree applicants seeking graduate certificates must be admitted under this category. Upon satisfactory completion of a course, credit is placed on a Wichita State University graduate transcript. However, only credit earned in courses numbered 500 and above is counted as graduate-credit work.

Students applying for admission in this category typically must meet the following requirements:

1. A bachelor's degree from a regionally accredited institution; and
2. A grade point average of at least 2.750, including any postbachelor's graduate work. In certain instances, the GPA may be based on the last 60 credit hours of coursework (or nearest semester or term break to this). Many departments require a higher minimum grade point average.<sup>2</sup>

Although there is generally no application deadline for nondegree, Category A admission, applicants are encouraged to provide the following items no later than three weeks prior to the start of the semester in which they wish to enroll:

1. The Graduate School application form (submitted online);
2. Application fee (submitted online); and
3. Uploaded copies of transcripts of either all academic work including the bachelor's, *or* an earned master's degree (uploaded as part of the online application form).

*Note:* If admitted, an official copy of the uploaded transcript will be required. WSU transcripts will be ordered by the Graduate School for admits who have completed WSU coursework.

#### **Nondegree, Category B**

This category is specifically for students who are not seeking a graduate degree but who want to continue personal and professional development beyond the bachelor's level through enrollment in certain graduate-level courses, including workshops. Students in this category are restricted to enrollment in courses numbered through 799 and for which they have the prerequisites. Credit earned in Category B status is placed on a Wichita State University graduate transcript; graduate credit is awarded for courses numbered 500 through 799.

Students applying for admission in this category must have earned a bachelor's degree from a regionally accredited institution. Many programs require a minimum grade point average.

Although there is generally no application deadline for nondegree, Category B admission, applicants are encouraged to provide a completed application packet no later than three weeks prior to the start of the semester in which they wish to enroll.

The completed application packet must contain the following:

1. The Graduate School application form (submitted online);
2. Application fee (submitted online); and
3. Uploaded copies of transcripts of either a bachelor's degree from a regionally accredited institution *or* a copy of a teaching certificate (uploaded as part of the online application form).

*Note:* If admitted, an official copy of the uploaded transcript will be required. WSU transcripts will be ordered by the Graduate School for admits who have completed WSU coursework.

Students admitted for MBT enrollment may have different requirements which will be communicated directly to them from the admissions staff.

#### **Graduate Certificate Programs**

Graduate certificates are awarded to students who desire interdisciplinary coursework to complement their graduate degree program or who, for academic, personal or professional reasons, desire graduate-level education not leading to a graduate degree.

Prospective students seeking graduate certificates must be admitted to the Graduate School in a degree program or certificate program (a nondegree, Category A program). New graduate students will apply using the application for admission. Students already in a graduate program or already holding an appropriate nondegree status must submit the online Declaration of Intent to Pursue a Graduate Certificate form (<https://www.wichita.edu/grad-certificate-declaration/>)<sup>1</sup> to be formally approved to pursue the chosen certificate(s). All Graduate School policies relative to the admission criteria mentioned previously apply.

More information about the completion requirements for Graduate Certificates can be found in the Degree and Certificate Requirements (p. 41) section of the Graduate Catalog.

#### **Graduate Badge Admission**

Admission to this category provides students the opportunity to take badge coursework for which they have the prerequisites. Students in this category are not seeking a graduate degree, but want to continue professional development through skills acquired in the badge coursework. Students applying for admission in this category typically must meet the following requirements:

1. A bachelor's degree from a regionally accredited institution; and
2. A grade point average of at least 2.750. In certain instances, the GPA may be based upon the last 60 credit hours of coursework (or nearest semester or term break to this), including any postbachelor's graduate work.

Although there is no application deadline for the graduate badge category, students are encouraged to provide the following items no later than two to three weeks prior to the start of the badge course in which they wish to enroll:

1. The Graduate School application form (submitted online);
2. Application fee (submitted online); and
3. Uploaded copies of transcripts of either all academic work including the bachelor's, *or* an earned graduate degree (uploaded as part of the online application form).

*Note:* Those admitted to Badge status do not have to submit official transcripts for admission.

*Important Note:* Badge credits may only be applied as electives toward a graduate degree if the badge(s) was earned as a part of a graduate non-degree program and has been stacked into a specific course; or the badge(s) is rolled into an earned certificate; and the graduate program and Graduate School approve the use of badge credit(s) via the plan of study. All graduate rules with respect to coursework will apply to the badges (e.g. time limits; nonletter graded coursework limits).

**Graduate Guest Admission**

Graduate students in good standing at another regionally accredited graduate school may be admitted as visiting guest students. Such admission is valid for only one semester. Admission requires the submission of a completed application and application fee, and a signed letter from the graduate dean or the dean's representative at the home institution certifying the student's status as a graduate student in good standing. Visiting guests must have their school's permission to take up to one semester's work for transfer back to their home institutions. If enrollment is desired beyond one semester, students must obtain regular admission.

<sup>1</sup> Link opens new window.

<sup>2</sup> Please be aware that entrance requirements for the Master of Innovation Design program are more flexible, with more emphasis placed on the applicant's fit for the program.

**English Proficiency**

Proof of English proficiency may be required for U.S. citizens or permanent residents who are non-native English speakers. Please review the more detailed English Proficiency (p. 24) section for additional information.

**Levels of Admission****Full Standing**

Students who have fulfilled all of the admission requirements for a given program, including admission grade point average, entrance exams if required, reference and credentials if required, and have 9 credit hours or less of prerequisites, may be granted admission on a full-standing basis. Students admitted to full standing are eligible for consideration for assistantships and federally-funded financial aid.

**Conditional Status**

Students who may have background deficiencies in excess of 9 credit hours, but fewer than 16 credit hours, or who have not submitted required references, examinations and so forth, but who otherwise have met the full-standing degree program requirements, may be granted admission on a conditional basis. Students are allowed one semester to submit the remaining credentials, including test scores, and one year to remove background deficiencies. Transfer to an appropriate nondegree category will result if the necessary conditions are not satisfactorily met. Students admitted with conditions may be eligible for federally-funded financial aid, and may be considered for graduate assistantship positions.

**Probationary Status**

Students who do not meet the minimum academic requirements for full-standing degree program admission may be admitted on probation when reasonable evidence exists to indicate their ability to do satisfactory degree program work. In order to clear the probationary status, students must complete their first 9 credit hours of graded graduate-level coursework at Wichita State University with a minimum 3.000 grade point average. Only courses numbered 500 and above which are letter graded (*A, B, C, D, F*) can be used toward the 9-credit-hour requirement. *S/U, Bg/NBg* and *Cr/NCr* courses will not count toward the 9-credit-hour requirement.

Students who have a graduate history at WSU must also raise their graduate grade point average to a 3.000 or better to be removed from probation.

Students admitted on probation or placed on academic probation following admission may be eligible for federally-funded financial aid, and may be considered for assistantship positions in some cases.

**Graduate Credit for Undergraduates****Senior Rule Admission**

Seniors at Wichita State or neighboring bachelor's-degree-granting institutions may qualify to take work for graduate credit under the senior rule option. Students who wish to earn graduate credit under the senior rule option must apply to the Graduate School for graduate admission, be admitted, and also complete an Application for Senior Rule. The link for the online Graduate School application, as well as the senior rule form itself, are available on the Graduate School's website. Both the application for admission and the senior rule form are due in the Graduate School no later than two weeks before the semester in which the student intends to enroll under the senior rule option. Students planning to earn senior rule credit for more than one semester must submit a new Application for Senior Rule form each semester. Courses taken at the 500–700 level that are not identified on the Application for Senior Rule form as being intended for graduate credit will be awarded as undergraduate credit.

Approval is needed from the student's major advisor, the chairperson or graduate coordinator in the program in which the work is to be taken, and the dean of the Graduate School. In addition, students from other institutions must be admitted as undergraduates (possibly as guest students) through the WSU undergraduate admissions office. Tuition for graduate courses will be assessed at the graduate rate.

Students should meet with their advisor to create a plan for completing the undergraduate degree while taking additional graduate credit. Courses taken for graduate credit cannot be used to complete undergraduate degree requirements. Students must maintain a 3.000 GPA in all courses approved for Graduate credit under the senior rule policy. Students who fail to maintain a 3.000 will be placed on academic probation when they begin their graduate program. If a student does not complete their bachelor's degree, the graduate credit may revert back to undergraduate credit.

Students who are receiving federal financial aid should consult with a financial aid advisor to determine if taking graduate level coursework while an undergraduate student will impact their financial aid award.

**Admission to Dual/Accelerated Bachelor's to Master's Degree Programs**

The dual/accelerated bachelor's to master's degree programs offer outstanding students opportunities to advance their careers in significant ways by pursuing the bachelor's and master's degrees in a parallel and coordinated program. In addition, it may be possible for students to complete the requirements for both degrees (in the same field) in an accelerated time frame. The goal of this program is to provide students with a high level of academic advising culminating in the preparation of the graduate program of study while students are still in their sophomore or junior years. Dual/accelerated degree programs are available in:

- BA to MEd in exercise science
- BA to MA in applied economics
- BBA to MHRM (human resource management)
- BBA to MS in management science and supply chain management
- BS to MS in biomedical engineering
- BS to MS in computer science
- BS to MS in computing
- BS to MS in electrical and computer engineering
- BS (in industrial or manufacturing engineering) to MS in industrial engineering

- BS to MEM (master of engineering management)
- BS to MS in mechanical engineering
- Bachelor's Degree to MA in aging studies
- BS to MHA (health administration)
- BSN to MSN in nursing
- BA to MA in English
- BS to MS in mathematics
- BA to MA in Spanish

Each dual/accelerated program has specific admission requirements. Students should consult with the department's graduate coordinator if they are interested in this type of program.

Students who are receiving federal financial aid should consult with a financial aid advisor to determine if taking graduate level coursework while an undergraduate student will impact their financial aid award.

## Readmission for Former or Dismissed Students

### Readmission to Graduate School

Students who have completed coursework at Wichita State University, but have not enrolled in the past 24 months, are placed in inactive status. To enroll again, students must apply for readmission into the chosen degree program through the application process. Readmitted students with a previous Plan of Study on file will be required to submit a new plan meeting current degree program requirements. Graduate School policies in the current graduate catalog must be met.

No statements or policies in this catalog guarantee readmission into the Graduate School.

### Graduate Readmission Following Academic Dismissal

Following academic dismissal, students who wish to be considered for readmission to the Graduate School must first complete a minimum of 9 credit hours of 500 level or above letter-graded coursework, selected with appropriate advisement. These 9 credit hours cannot include repeats of courses for which graduate credit was previously earned, and cannot be applied toward a graduate degree should the student be readmitted. Such coursework must be completed with a grade point average of 3.000 or higher for the readmission application to be considered. Meeting this standard, along with both Graduate School and program-specific requirements, will permit consideration of readmission to a graduate program. Previously dismissed students who are recommended for readmission under this policy will re-enter on probation.

No statements or policies in this catalog guarantee readmission into the Graduate School.

## Information for International Applicants

All Graduate School policies relative to the admission criteria mentioned previously apply. The formal admission of international students is a two-part process. The first part evaluates academic admissibility based on the application form, transcripts or mark sheets provided, and any required departmental application materials. Applicants recommended for admission will be notified by the Graduate School of their eligibility for admission and the application will begin the second part of the admission process.

The second part requires the demonstration of sufficient English proficiency (TOEFL, IELTS or PTE Academic) and financial resources

(WSU Certification of Financial Support) to support graduate work in the United States.

The first semester of enrollment at WSU for all international graduate students must be in the program to which the student was admitted.

*Note:* Application requirements, including application fees, deadlines and required materials are subject to change. Please refer to the Graduate School website (<https://wichita.edu/gradschool/>)<sup>2</sup> for the most up-to-date information.

### Transcripts

For admission consideration, applicants will upload copies of their official documents into the online application portal. If offered admission, WSU will require that the student provide an official copy of all postsecondary school transcripts, translated into English. If the transcript does not indicate the award of a bachelor's degree or its U.S. equivalent degree, official copies of the degree certificate or diploma are required.

International applicants who have completed graduate work or have attended a U.S. university will need to have an official transcript showing that work sent directly from the institution, or may submit official *issued to student* transcripts. Please note that in order to be accepted, the transcripts must be received in the Graduate School office in envelopes sealed by the issuing institution.

Graduate programs will evaluate international applicants based on the uploaded copies of official transcripts or mark sheets through at least the sixth semester of work in a four-year program. For international students in a yearly program, this will be after the third year. In this instance, applicants who are recommended for admission and who have met all other admission requirements will be notified of admission and issued the I-20 form. Students admitted in this manner must provide the remaining transcript or mark sheet and the degree certification statement or diploma by the end of their first semester of enrollment as graduate students at WSU. Students who fail to meet this final requirement will be designated as *out of compliance* and will be reported to the university's Office of International Education.

### English Proficiency

During the online application process, students will have the option of uploading a copy of their official test scores, if available. If offered admission, applicants whose native language is not English must submit official, acceptable scores for either the TOEFL, the Academic Module of the IELTS examination, or the PTE Academic. To be acceptable, the score must be sent to WSU directly from the testing agency, and must be less than two years old. The minimum acceptable scores for most programs are: TOEFL — 79 on the internet-based test, or 550 on the paper-based test. IELTS — minimum overall band score of 6.5 is required. PTE Academic — 58. Students completing the Intensive English program at WSU may establish English proficiency by achieving an overall GPA of 3.000 in Levels One through Six, and a grade of B+ or higher in Level Seven. Some programs do have higher requirements for English proficiency. Please refer to the table below for specific information. Programs with higher requirements may still require students to achieve these scores even if they complete the IELC coursework as described above.

Waivers will be considered if the applicant has attended a college or university in the United States as a full-time student for a minimum of one year. Enrollment must have been in academic-only coursework (no English language training courses), and must have resulted in a GPA of 3.000 or higher. In order to be considered for a waiver, this coursework

must have been completed within two years of the proposed semester of admission at WSU.

Waivers will also be considered if the bachelor's or graduate degree was awarded from a U.S. university within two years of the proposed semester of admission at WSU.

The following programs currently require a higher score than the minimum stated above. The listing below includes only the internet-based TOEFL, IELTS and PTE Academic scores. For paper-based equivalencies, please contact the Graduate School.

Program Name	TOEFL	IELTS	PTE
Audiology <sup>1</sup>	100	7.5	73
Business Administration	88	7.0	65
Communication	100	7.5	73
Communication Sciences & Disorders (MA) <sup>1</sup>	100	7.5	73
Creative Writing	100	7.5	73
English	100	7.5	73
Executive MBA	88	7.0	65
History	100	7.5	73
Health Administration	88	7.0	65
Management Science and Supply Chain Management	88	7.0	65
Physical Therapy	100	7.5	73
Public Administration	88	7.0	65

<sup>1</sup> Also requires a minimum 23 on the speaking portion of the iBT (or equivalent).

Applicants interested in studying English at WSU prior to beginning their graduate studies should write to:

Intensive English Language Center  
Wichita State University  
1845 Fairmount  
Wichita, Kansas 67260-0122  
USA

For more details, visit the Intensive English Language Center website (<http://wichita.edu/ielc/>)<sup>2</sup>. Application forms may also be requested by email at: [international@wichita.edu](mailto:international@wichita.edu).

### WSU Certification of Financial Support

International applicants must demonstrate sufficient financial resources in order to support their graduate work in the United States. The WSU Certification of Financial Support must be filled out and signed, and submitted along with supporting documents such as bank statements, scholarship letters, or other evidence of support. An interactive Certification of Financial Support form (<http://webapps.wichita.edu/FinStatement/>)<sup>2</sup> is available on the WSU website.

### International Transfer Students

International students transferring from universities in the United States must present the following items:

1. A completed online application for admission;
2. The nonrefundable international application fee;
3. Uploaded copies of official transcripts from each college or university attended in the United States, plus an official copy of the undergraduate transcript translated into English. If the transcript does not indicate the award of a bachelor's degree or its U.S. equivalent degree, an uploaded official copy of the degree statement or diploma are required. Please see the last two paragraphs under the heading Transcripts (p. 24);
4. Uploaded copies of official, acceptable scores from either the TOEFL, IELTS or PTE Academic. A waiver will be considered if the applicant has attended a U.S. university in the United States as a full-time student in academic courses for a minimum of one year, or the bachelor's degree was awarded from a U.S. university within two years of the proposed semester of admission at Wichita State University; and
5. A completed WSU Certification of Financial Support, and supporting documentation as described on the form.  
*Note:* students offered admission based on uploaded documents will be required to submit official, original documents to finalize their admission.

### Mandatory Health Insurance

Wichita State University requires that all nonimmigrant international students have a specified minimum amount of medical insurance protection for every semester they are enrolled as students at Wichita State University.

Each nonimmigrant international student must obtain and maintain medical insurance from a company authorized to do business in the United States, with the following minimum coverages:

1. Basic injury and sickness benefits amounting to at least \$10,000;
2. Major medical coverage in an amount of at least \$100,000;
3. Coverage to provide for medical evacuation of the student to the student's home country; and
4. Coverage to provide for repatriation of the student's remains to the student's home country in the case of death.

Failure to obtain and maintain such coverage during the student's time of enrollment will be grounds for discipline up to and including expulsion.

### Exceptions to Regulations

Departures from the rules and regulations stated in the Graduate Catalog require the filing and approval of an Application for Exception to Graduate School Regulations form. Such requests must have the approvals indicated on the form and must state in a logical and coherent manner a rational basis for the requested exception. Forms for such requests are available from the Graduate School, from graduate program areas, and may be downloaded from the Graduate School website. Unusual and/or substantial deviations from stated rules and regulations may require action by the Graduate Council.

<sup>2</sup> Link opens new window.

### Entrance Exam Contact Information

Many graduate degree programs have entrance examination and GPA requirements. (See Graduate Degree Programs and Departmental Admission Requirements (p. 5))

Please contact the appropriate organization for further entrance exam information:

GRE (Graduate Record Exam) ([http://ets.org/gre/revised\\_general/scores/send/](http://ets.org/gre/revised_general/scores/send/))<sup>1</sup>

Institution Code — 6884

Department code is not required, as all scores are entered into the university database rather than sent to individual programs.

GMAT (Graduate Management Admissions Test) (<http://mba.com/us/the-gmat-exam/gmat-exam-scores/your-score-report/obtain-your-score-report.aspx>)<sup>1</sup>

Wichita State University code: 6B6-CG-47

Scores are sent directly to the Barton School of Business.

MAT (Miller Analogies Test) ([http://pearsonassessments.com/postsecondaryeducation/graduate\\_admissions/mat.html](http://pearsonassessments.com/postsecondaryeducation/graduate_admissions/mat.html))<sup>1</sup>

Wichita State University code — 2090

TOEFL (Test of English as a Foreign Language) (<http://ets.org/toefl/ibt/scores/send/>)<sup>1</sup>

Institution Code — 6884

IELTS (International English Language Testing System) (<https://ielts.org/book-a-test/getting-your-results/>)<sup>1</sup>

Scores will be sent from the individual testing locations.

PTE Academic (Pearson Test of English) (<http://pearsonpte.com/test-takers/results/>)<sup>1</sup>

Follow the instructions on their website for sending scores.

<sup>1</sup> Link opens new window.

## Enrollment

The enrollment section includes information on tuition and fees, what constitutes full-time student status, the definition of residency for tuition purposes, and even how to get a parking permit.

- Load Definitions, Restrictions (p. 27)
- Registration, Drops and Adds (p. 27)
- Tuition and Fees (p. 27)
- Workshops, Off-Campus, Online, Auditing Course Fees (p. 28)
- Student Parking Permits (p. 28)
- Payment (p. 28)
- Special Fees and Refund Policies (p. 29)
- Tuition and Fee Waivers (p. 29)
- Midwest Student Exchange Program (MSEP) (p. 30)
- Residency Defined (p. 30)
- Student Identification (p. 31)
- Transcripts (p. 31)
- Withdrawal - Administrative (p. 32)
- Exceptions to Regulations (p. 32)

## Load Definitions, Restrictions

### Load Definitions

At least 9 credit hours of graduate credit coursework is defined as full-time graduate enrollment during the fall or spring semester. During the summer session, a minimum of 6 credit hours is considered full-time graduate enrollment. Load (total credit hours) does not include audit enrollments. Students enrolling in all or a majority of courses that carry undergraduate credit must meet the undergraduate requirement for certification as full-time students (12 credit hours).

International students must enroll as full-time students (at least 9 credit hours of graduate credit coursework) each semester. Students placed on probation after admission are not allowed to enroll in more than 12 credit hours during semesters in which they are on probation.

Students holding assistantships should work with their advisors to arrive at a load appropriate to their situation.

Graduate students holding assistantships during a fall or spring semester are expected to enroll in at least 9 credit hours of graduate coursework, of which 6 credit hours must be at the graduate level. Approval to allow graduate assistants who hold a 20-hour appointment to be enrolled in 6 to 8 credit hours may be granted by the program in which the student is admitted. Special consideration for thesis, project, dissertation and research enrollments below 6 credit hours may be obtained by filing an exception with the Graduate School.

### Enrollment While on Probation

Students placed on probation after admission are not allowed to enroll in more than 12 credit hours during semesters in which they are on probation.

## Registration, Drops and Adds

The registrar establishes procedures for registration. Graduate students must enroll according to the procedures published online on the Office of the Registrar website (<http://wichita.edu/registrar/>)<sup>1</sup>. Students register through web registration in the *myWSU* portal.

Prior to registering for classes, all students should contact their academic advisors to assure they are taking the appropriate classes. Early registration for one semester normally begins about midway

through the preceding semester. **Registration for a course or courses represents a financial commitment that the student is obligated to pay.**

Graduate students with an active program, who are not academically dismissed, are eligible for online registration. Some academic restrictions have been built into the system. Some restrictions cannot be overridden including nondegree, Category B students enrolling in courses beyond the 799 level. Program specific restrictions may be considered for removal by contacting the appropriate program and requesting an electronic override.

Registration and classes begin and end at varying times so it is important to consult the semester calendar for details. For more information, check the Schedule of Courses website (<https://wichita.edu/schedule/>)<sup>1</sup>.

Once a student has enrolled, classes may be changed online for a certain period of time that varies according to the start date and length of the course. After the online period has passed, students must process in-person drop and/or add forms with the appropriate approvals. Changes of sections also require such action. If these forms are not submitted, a grade of *F* could be recorded for failure to attend the class shown on the original enrollment records.

Late enrollments or adds normally will not be approved after the 20th class day. Drops of classes with a grade of *W* (withdrawal) are subject to a time limit established by the registrar.

Cutoff deadlines for dropping with a refund also vary according to the start date and length of the course.

Students who find it necessary to completely withdraw from the university must drop each class.

<sup>1</sup> Link opens new window.

## Tuition and Fees

The tuition and fees listed are subject to change by the Kansas Board of Regents. For complete list of course and services fees, see the comprehensive fee schedule (<https://www.wichita.edu/services/finance/ComprehensiveFeeSchedule.php>)<sup>1</sup>.

### Basic Fees

Basic fees for resident and nonresident students are listed here. For tuition and fees for Shocker City Partnership, Shocker Select, Midwest Student Exchange and Global Select, visit the tuition and fees webpage (<http://wichita.edu/tuition/>)<sup>1</sup>.

*Note:* Tuition and fees are for the fall and spring semesters and the summer session. **Tuition and fees for 2021-2022 had not been established at the time of publication, but an increase is anticipated.** Published fees reflect the 2020-2021 rates.

	Resident	Nonresident
<b>Undergraduate Tuition</b>	\$ 228.09 per credit hour	\$ 540.27 per credit hour
<b>Graduate Tuition</b>	\$ 307.98 per credit hour	\$ 756.38 per credit hour
<b>Online Tuition</b> <sup>2</sup>	\$ 228.09 per credit hour	\$ 540.27 per credit hour
<b>Online Fee Campus</b>	\$ 97.25 per credit hour	\$ 97.25 per credit hour
<b>Infrastructure &amp; Support Fee</b> — all students <sup>3</sup>	\$ 6.00 per credit hour	\$ 6.00 per credit hour

**Technology Fee** — all students<sup>4</sup> \$ 1.00 per credit hour \$ 1.00 per credit hour

**Transportation Fee** — all students<sup>5</sup> \$ 0.75 per credit hour \$ 0.75 per credit hour

Student Activity Fee	Fall/Spring	Summer
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<b>Undergraduate<sup>6</sup></b>		
9.00 or more credit hours	\$ 679.18	\$ 339.60

6.00 to 8.75 credit hours	\$ 452.78	\$ 226.40
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up to 5.75 credit hours	\$ 226.40	\$ 113.21
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<b>Graduate<sup>6</sup></b>		
7.00 or more credit hours	\$ 679.18	\$ 339.60

4.00 to 6.75 credit hours	\$ 452.78	\$ 226.40
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up to 3.75 credit hours	\$ 226.40	\$ 113.21
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<sup>1</sup> Link opens new window.

<sup>2</sup> The tuition for online majors is set at the resident rate (undergraduate and graduate).

<sup>3</sup> The Campus Infrastructure and Support Fee supports registration costs and the OneStop service center which provides 24/7 support for students in the areas of admissions, financial aid, registration, advising and student accounts. All students have access to such services virtually or at the physical OneStop service center.

<sup>4</sup> The Technology Fee is assessed to all students for technology upgrades and replacement.

<sup>5</sup> The Transportation Fee is assessed to all students to help offset the cost of the campus shuttle bus service.

<sup>6</sup> Students enrolled in online majors are exempt from the semester fee.

## Workshops, Off-Campus, Online, Auditing Course Fees

### Credit and Noncredit Courses for Nondegree-Seeking Students

#### Courses

Concurrent High School Enrollment Tuition	\$100/course
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Badges (undergraduate and graduate)	based on costs/badge
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Market-Based Tuition Course	based on market/credit hour
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#### Workshops

Workshops That Award Credit	based on tuition and fees/credit hour
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Noncredit Workshops	based on costs/workshop
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#### CATIA Workshops (regardless of location)

The laboratory fees for CATIA workshops are as follows:

1.5 Credit-Hour Workshops Tuition and Fees	\$800/workshop
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0.75 Credit-Hour Workshops Tuition and Fees	\$400/workshop
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Media Course/Telecourse Fee	\$20/credit hour
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### Auditing Course Fees

Tuition and fees per credit hour for courses and workshops audited are the same as for courses taken for credit.

## Student Parking Permits

Students and frequent visitors desiring to park on campus can visit Parking at Wichita State (<https://wichita.edu/parking/>)<sup>1</sup> to purchase an e-permit.

Students and Frequent Visitors: \$75/semester (fall, spring)  
Car/SUV/Truck/Motorcycle

<sup>1</sup> Link opens new window.

## Payment

Tuition and fees, including any departmental or college fees, are required to be paid in full for any course in which a student is still enrolled after the deadline for dropping that course with a 100 percent refund.

An installment payment plan is available at the time of enrollment to assist students in making tuition payments. Any student who does not have financial aid from other sources sufficient to pay tuition and fees is eligible if the student has paid all previous obligations to the university. The installment plan requires a \$130 nonrefundable down payment which includes a \$30 setup fee making the installment plan interest-free. Installment plans must be repaid in two or three equal installments according to the deadlines for a given semester.

### Assessment and Collection

The senior associate vice president for financial services is responsible for the assessment and collection of fees. All semester fees, including laboratory fees, are due and payable in full at registration.

### Late Fees

All accounts with a balance greater than \$150 from tuition, enrollment related fees or housing charges assessed in the current term will incur a \$100 late fee on the first business day after the published payment due date. The payment due date for tuition and enrollment related fees will coincide with the financial aid office's recalculation date, the registrar's office late enrollment date, and the financial operations office 100 percent refund date for 16-week courses. The payment due date for housing charges is stated in the housing contract.

All delinquent accounts with a balance due greater than \$150 from tuition, enrollment related fees or housing charges will incur a late payment fee of \$100 ninety (90) calendar days into the current term.

### Unpaid Fees

Students who leave Wichita State University without meeting their financial obligations to the university will have their records impounded by the registrar and their accounts may be sent to a collection agency resulting in additional fees. Their transcripts or diplomas will not be issued unless their accounts are cleared, and they may not enroll for a new term unless all fees are paid.

Students who are eligible to graduate but still have unpaid tuition balances will not receive their diplomas until those fees are paid.

### Board of Appeals—Residency Status

Two faculty members, a department director, a representative of the office of financial operations and business technology, and a representative of the general counsel's office constitute the board of appeals for students who believe their residency status has been incorrectly assessed or is eligible for change. The decision of this

committee is final. Forms to initiate this process may be obtained in the registrar's office, 102 Jardine Hall. Residency forms can also be downloaded online (<https://wichita.edu/residency/>)<sup>1</sup>. Also see the Residency Defined section in this catalog.

<sup>1</sup> Link opens new window.

## Special Fees and Refund Policies

### Drop/Add Fee Policy

Students who drop credits in the same term and do not add credits will be charged the proportional percentage based on the week they drop the credits.

Students who drop and add credits in the same term will not be required to pay additional tuition/fees if the following conditions are met:

1. The drop and add occurs in one transaction; and
2. There are an equal number of credit hours added as are being dropped, and the credit hours have an equivalent charge.

A course that has been added in accordance with parts 1 and 2, and is subsequently dropped, will retain the same refund percentage as the original course dropped. Students who drop the added course that met the above conditions will have an adjustment made to their account. (Example: A student drops course A and adds course B. Course A would have had a 0 percent refund; however, because conditions have been met, student receives a 100 percent refund for course A. Student then decides to drop course B. An adjustment is made to the account reversing the 100 percent refund received for course A.)

### Complete and Partial Withdrawal

Complete withdrawal from the university is accomplished when a student officially drops all classes in which they are enrolled.

Students are eligible for refunds as published online in the fee calendar each semester. In short-term classes, students will have the first class period to determine if the class is suited for them. Students who register late or fail to attend the first class period in short-term classes will not be eligible for 100 percent refunds according to the policy.

The *first class day* refers to the first day of the part-of-term as defined by the department and registrar's office; thereafter, the *day* refers to the business day. The length of the *part-of-term* determines the refund, rather than the start and end date of the course. When a course's part-of-term length falls between two of the above categories, then the shorter one is used. (Example: If course A part-of-term begins Monday and the actual course meets on Thursday, the refund business day begins with Monday, not Thursday.)

If a short-term class begins on Friday night, Saturday or Sunday, students will have until the end of the first business day to drop the course. In order to receive a 100 percent refund for the class, the student must provide documentation that he or she did not attend more than four hours of the class.

No one other than the Office of Financial Operations and Business Technology in 201 Jardine Hall, or the Tuition Refund Board of Appeals is authorized to determine the amount of tuition refund a student will receive.

### Military Refund Policy

Students serving in the National Guard or Reserves who are called to active duty during an academic term are entitled to receive a full refund of tuition and fees. Students who are drafted and must report for active duty during an academic term are entitled to receive a full refund of tuition and fees. All refunds are subject to presentation of official

documentation. Students who are classified as civilians, but choose to assist in nonmandatory U.S. military related efforts, are not covered by this exception and will be subject to the university's nonmilitary refund policy. Room and board charges will be prorated to the extent that services have been provided.

The university will return any unearned tuition assistance (TA) funds by using the standard formula for determining the amount of TA earned by the institution. This is calculated on a percentage basis by dividing the number of days a student completes, based on the last date of attendance, by the total number of days in the course. This calculation, if less than the 60 percent completion rate, determines how much TA the student has earned and for how much the military branch may be invoiced. Should there be any remaining TA funds prior to the 60 percent period of a course, these funds will be reimbursed directly to the military branch from which the funds were provided, not to the student.

### Exceptions to the Refund Policy

Students who, because of extenuating circumstances, seek a higher refund than is available by policy, must petition the Tuition Refund Board of Appeals. Petition forms are available at myWSU myFinances (<https://myWSU.wichita.edu/>)<sup>1</sup>, or the Office of Financial Operations and Business Technology, 201 Jardine Hall. The petition must be filed with the appropriate documentation. A Petition for Tuition Refund beyond the policy must be filed at the Financial Operations and Business Technology Office within the semester in which the course was taken.

Students who may have received approval from the University Exceptions Committee for a late withdrawal from a previous semester are not eligible by policy for a tuition refund. These are separate issues and decisions. Medical or military approvals will receive a 100 percent tuition refund.

<sup>1</sup> Link opens new window.

## Tuition and Fee Waivers

### Student Fee Waivers

Student fees shall be waived for all Wichita State University benefits-eligible employees, adjunct faculty members and lecturers. These university employees must have an appointment for the semester in which the student fee is applicable.

Student fees shall be waived for enrolled students who are working in their cooperative education or applied learning job, or who are performing a required clinical rotation or internship off the WSU campus (defined as the City of Wichita, its contiguous industrial sites and the WSU South and West locations) for the entire semester.

Student employees and graduate assistants are not eligible for student fee waivers.

### Tuition Waiver for Kansas Teacher of the Year

Kansas Teacher of the Year recipients are allowed to enroll tuition free in up to 9 credit hours annually provided the individual is actively pursuing a teaching career in Kansas.

To be eligible, a person must be:

1. A past or present recipient of the Kansas Teacher of the Year award under the program administered by the Kansas Department of Education, and
2. Employed as a teacher in an educational institution accredited by the Kansas Department of Education.

A list of persons eligible for this tuition waiver is on file in the Board of Education Office.

### Senior Citizen Fee Waiver

In accordance with Kansas Board of Regents policy, students who are at least 60 years of age may audit (no credit) regular lecture or certain group activity courses — when there is space available and for which they meet the prerequisites — without payment of tuition and student fees, campus infrastructure and support fees, and technology and transportation fees. However, senior auditors must pay any *applicable* workshop fees and lab/special course fees.

*Prerequisites include admission to the graduate school for graduate courses, and program admission for courses in which program admission is required of all students.*

Senior citizens must present a Medicare card or driver's license to validate age. A special senior citizen registration is held after the first day of classes — see the Schedule of Courses, semester calendar at the registrar's website (<http://wichita.edu/registrar/>)<sup>1</sup>.

Senior citizens desiring college credit or the assurance of space in specific courses may enroll and pay full fees during regular registration.

Senior citizens who have not enrolled at WSU before must complete an application for admission and pay the application fee before registering at the undergraduate or graduate admissions office, \$40 for undergraduate or \$50 for graduate.

Senior citizens who want to participate in at least one of the Human Performance Studies (HPS) 152 sections have three options:

1. Purchase a membership in the Center for Physical Activity and Aging (CPAA), \$50 for membership purchased at the HPS department. Enrollment through the registrar's office is not necessary.
2. Those who want more complete access to the Heskett Center and Ablah Library privileges, may join CPAA and enroll through the registrar's office with audit status in a 0 credit hour section. Costs include a \$50 membership fee, \$21 + tax Heskett Center fee paid at the Heskett Center, and any *applicable* workshop fees and lab/special course fees.
3. Senior citizens may enroll in one class for full credit at a total cost of the current tuition and student fees, campus infrastructure and support fees, and technology and transportation fees.

Members of the CPAA are eligible each semester for functional assessment testing of their ability to perform daily living activities and an annual bone density evaluation. Membership also provides education concerning the concepts of active aging to the older adult population through newsletters, workshops, lectures and exercise demonstrations.

### Tuition Waiver for Graduate Teaching Assistants

Graduate teaching assistants (GTAs) are eligible for full or partial waiver of in-state tuition up to 12 credit hours per semester (where they hold qualified assistantships) for graduate courses numbered 500 and above.

<sup>1</sup> Link opens new window.

## Midwest Student Exchange Program (MSEP)

Residents of specified states who enroll in selected majors at WSU are eligible to pay just 150 percent of in-state tuition instead of paying

out-of-state tuition rates. This is a tuition discounting program, not a scholarship.

In Kansas, all graduate students participating in the Midwest Student Exchange Program:

1. Must be fully admitted to the MSEP-eligible graduate program of choice — see admissions requirements online (<http://wichita.edu/gradprograms/>)<sup>1</sup>; and
2. Must enroll full time in an MSEP-eligible graduate major and make acceptable progress toward the degree (Note that graduate students who hold a teaching, research or staff graduate assistantship of 16 credit hours or more per week are not eligible for the MSEP tuition reduction.); and
3. Must be a resident of Illinois, Indiana, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio or Wisconsin.

If a student satisfies these criteria, they will be sent an MSEP agreement. Fee bills will reflect MSEP tuition rates only after the agreement is signed and returned. MSEP participation must begin at the time of first admission and enrollment at WSU.

See the MSEP program website (<http://wichita.edu/msep/>)<sup>1</sup> for contact information and the most up-to-date list of eligible majors.

<sup>1</sup> Link opens new window.

## Residency Defined

The residence of students, for tuition and fee purposes, is determined by acts of the Kansas legislature, rather than university policy.<sup>1</sup> The legislature has also granted the Kansas Board of Regents certain authority to adopt regulations and guidelines for the determination of residence, within the broader state law. The law and regulations are *different* than those that govern residency for any other purpose.

According to Kansas law and regulations, a resident, for tuition purposes, is someone who has resided (been physically present) in Kansas for 12 consecutive months prior to enrollment/re-enrollment as a U.S. citizen or permanent resident, and who has *demonstrated*, during those 12 months, the intent to make Kansas his or her permanent home. Intent is evaluated in light of:

1. The person's statement about why she or he came to Kansas in the first place, and
2. What the person has done since coming to Kansas (objective, verifiable facts).

Many factors are considered when evaluating intent. The Kansas Board of Regents' guidelines list nonconclusive factors or circumstances that could help support a claim for resident classification. The guidelines also specify a qualifier: "Any such factor, to be given weight, must be of at least one year's duration prior to enrollment/re-enrollment."

Residents of Kansas (for fee purposes) who leave the state retain their residency as long as they return to Kansas permanently within 60 months of departure.

A person who comes to Kansas to go to school, and who enrolls full time every semester after arriving, may not be able to demonstrate the intent to remain in Kansas permanently, as long as that pattern continues. In contrast, certain exceptions are authorized by state law to pay the equivalent of resident fees:

1. Regular employees of the university and their spouses and dependent children (does not apply to student assistants and graduate assistants);
2. Persons who are current military including members of the Kansas Air or Army National Guard, and their spouses and dependent children;
3. Veterans who live in Kansas and are eligible for post-9/11 benefits, or the eligible spouse or dependent child using the veteran's benefits;
4. Persons who graduated from a four-year program at an accredited Kansas high school within six months of their enrollment at a state university, and who were Kansas residents for fee purposes at, or within 12 months of, high school graduation;
5. Dependent students as long as at least one parent is a Kansas resident for fee purposes;
6. Persons who were recruited to, or transferred to Kansas within the last 12 months for a full-time job, and their spouses and dependent children; and
7. Any person who is attending or has attended Haskell Indian Nations University and who is enrolled as an American Indian on a tribal membership roll maintained by the Bureau of Indian Affairs of the U.S. Dept. of the Interior.

*The details about each of these exceptions are critical and are not all on this page. Several require certification of appropriate information on a special form. None of them is automatic. Contact the registrar's office for more information.*

A person who is residing in Kansas and would not otherwise be considered a resident of Kansas *will* be considered to be a resident for tuition purposes *if* she or he has attended three years of high school in Kansas and graduated from an accredited Kansas high school or earned a Kansas GED *and* she or he is not on a student visa or eligible to pay resident rates in another state. This can apply to undocumented aliens and former Kansans who have not been back in Kansas long enough to re-establish residency. This law does not apply to an eligible person's spouse or dependents. People who have been admitted as nonresidents and think they are eligible to be considered residents because of this provision should contact the registrar's office. The three years of high school in Kansas (includes 9th grade), and Kansas high school graduation, must be documented. It doesn't matter when the person attended or graduated. Aliens with nonpermanent resident status must document that. Aliens must sign an affidavit indicating that they will apply for permanent residency as soon as they are eligible. All students must sign an affidavit indicating that they are not eligible to pay resident rates in any other state.

Students applying for residency should contact the Office of the Registrar, 102 Jardine Hall. There are many details about establishing Kansas residency for tuition purposes that will be explained upon further inquiry.

Residency of new students enrolling for the first time at Wichita State is determined by the appropriate (undergraduate, graduate or international) admissions office according to the above law/regulations. Such students should address questions concerning residency to the appropriate admissions office.

When a continuing student, who was initially classified as a nonresident, thinks he or she meets these residency requirements, then he or she must apply for residency using a form available from the registrar's office. Lower fees do not necessarily mean that someone

has been classified as a resident — there are no nonresident fees, for example, for certain badge or market-based tuition courses.

The responsibility of registering under proper residence is placed on the student. If there is any possible question of residence classification, it is the duty of a student when registering and paying fees to raise the question with the registrar's office. Students who disagree with their residency classification are entitled to an appeal, provided they file a written appeal with the registrar within 30 days from enrollment and pay the fees as originally assessed. A standard appeal form is provided by the registrar's office. If notice of the appeal is not given in writing within 30 days, the classification or reclassification by the registrar becomes final. Appeals are reviewed and decided by the university committee on residency, and its decision is final. The committee is not empowered to make exceptions, just to apply the law and regulations to individual circumstances.

Students must report their correct address at the time of registration each semester. The address given must be the student's actual place of residence, because it will be the one to which all correspondence from Wichita State is sent. Any change in residence must be updated via the address change link in the *myWSU* portal immediately. More complete information on the residence law and regulations can be obtained from the registrar's office.

<sup>1</sup> The information in this section is a summary of Kansas law. It does not supersede the residency statutes or regulations which contain the detailed requirements that must be met in order to prove resident status.

## Student Identification

Each student is identified in the university's computer system by a unique set of eight numbers and letters, called *myWSU* ID. This ID is assigned and communicated to students at the time of application. A social security number is also required for everyone who has federal financial aid or is employed by the university, as they must also be identified in the system by their social security number.

All WSU students are required to have a WSU photo identification card called the Shocker Card. The card does not expire and is used to determine a student's current enrollment status. The initial card is free. Lost, stolen or discarded cards may be replaced for a fee.

A Shocker Card is required to use many services and resources on campus, including the Heskett Center and student tickets to athletic and fine arts events.

## Transcripts

A transcript is a certified copy of a student's permanent academic record. It contains confidential information and cannot be furnished/released without the student's signed, specific request.

Transcripts may be ordered online, in person at the registrar's office, or by submitting a request form via mail. Request forms and more detailed information are available at the registrar's transcript webpage (<http://wichita.edu/transcripts/>)<sup>1</sup>. A person's undergraduate and graduate transcripts may be ordered separately.

Transcript requests received in person or via mail must be accompanied by a readable copy of government-issued photo identification such as WSU ID, driver's license or passport. Requests will not be processed without this ID.

Mailed transcript requests should be sent to:

Attention: Transcripts  
Office of the Registrar  
Wichita State University  
1845 Fairmount  
Wichita, Kansas 67260-0058

**Reminder:** No one, including spouse or parent, can request or pick up another person's transcript without written authorization and proof of identity from that person.

If a person still owes the university money, or has not returned borrowed university property, transcript services are withheld.

<sup>1</sup> Link opens new window.

## **Withdrawal - Administrative**

Administrative withdrawal from courses may be initiated by the dean's office of the college or school in which a student is enrolled, the provost's office, or other appropriate university offices when a student is unable to complete courses because of extenuating circumstances. A grade of *W* will be officially recorded on the student's permanent record for a course or courses from which the student is administratively withdrawn.

## **Exceptions to Regulations**

Departures from the rules and regulations stated in the Graduate Catalog require the filing and approval of an Application for Exception to Graduate School Regulations form. Such requests must have the approvals indicated on the form and must state in a logical and coherent manner a rational basis for the requested exception. Forms for such requests are available from the Graduate School, from graduate program areas, and may be downloaded from the Graduate School website. Unusual and/or substantial deviations from stated rules and regulations may require action by the Graduate Council.

## Academics

The Academics section explains the university's course numbering system, how to appeal a grade, what to expect when repeating a course, and how to transfer credit from another university to Wichita State. These topics and others are treated with more detail in the following pages.

- Graduate Advisors (p. 33)
- Graduate Course Numbering System (p. 33)
- Graduate Students Requesting Undergraduate Credit (p. 34)
- Complaint Procedures, Academic Appeals (p. 34)
- Credit Hour Defined (p. 34)
- Independent and Directed Study Courses (p. 34)
- Grading System (p. 35)
- Repeats (p. 35)
- S/U Grades, Audit Credit (p. 36)
- Credit for Prior Learning (p. 36)
- Final Grade Reports (p. 36)
- Change of Grades Due to Error (p. 36)
- Probation, Dismissal and Amnesty (p. 36)
- Cooperative Education and Work-Based Learning Credit Courses (p. 37)
- Training in Professional and Scholarly Integrity (p. 37)
- Transfer of Credit from Another University (p. 37)
- Changing Graduate Programs (p. 38)
- Workshop, Extension, Correspondence Credit and Credit by Exam (p. 38)
- Exceptions to Regulations (p. 38)

## Graduate Advisors

Various patterns exist for advising graduate students. Some programs have a central plan for new graduate students, after which individual advisors are assigned. Other programs assign new graduate students to advisors early in their graduate program. Coursework taken without the advisor's expressed approval is not automatically applicable toward a graduate degree.

In all instances, advisors should be familiar with Graduate School rules and regulations as well as program and departmental requirements. While graduate students have the primary responsibility to know the rules and regulations and to fulfill the program requirements for their graduate degree, advisors' knowledge and expertise can assist students in their progress toward the degree.

An advisor assigned at the time of admission to a doctoral program will assist the student in completing initial tasks such as enrollment, coordination of examinations, submission of a plan of study, and the formation of a supervisory committee. Depending on individual program procedures, the advisor may chair an advisory committee which also will be involved in the advising activities above. It is possible for the advisor to be named as chairperson of the supervisory or dissertation committee.

Students with assigned advisors should consult their advisors for information on course prerequisites, content and similar matters.

## Graduate Course Numbering System

Courses carrying graduate credit are listed in the Graduate Catalog. Only courses numbered 500 and above can carry graduate credit

and only for students admitted to the Graduate School at the time of enrollment.

Courses numbered under 500 carry undergraduate credit only and may be taken as supporting or prerequisite courses, but may not be counted toward a graduate degree and are not computed in a student's graduate grade point average. They are also assessed at the appropriate undergraduate tuition rate. Graduate students who must complete prerequisite coursework at the 500 to 700 level may, in the semester of enrollment, request the registrar's office to change their enrollment level in those prerequisite courses to undergraduate level. Once changed to undergraduate level, those courses cannot be changed back to graduate level, and cannot be used toward a graduate degree. They will not be counted in the graduate grade point average, and they will be assessed at the undergraduate tuition rate. Please be aware that changing the level of these courses to undergraduate could impact financial aid disbursement, as well as credit hours needed to maintain full time graduate enrollment. Some tuition benefits for Graduate Assistants may not be awarded for courses changed to undergraduate level credit. It is recommended that students consult with their advisor, the Financial Aid office (if receiving federal aid) or the Office of International Student Services (if an international student) before changing the level of their prerequisite coursework.

Courses numbered 500–699 are aimed primarily at juniors and seniors, but graduate students may also receive graduate credit for these courses if the student was admitted to the Graduate School prior to enrollment in the course. Some graduate programs do not allow courses numbered 500–699, which carry graduate credit, to meet degree requirements and students should be aware of such restrictions before enrolling. In such mixed classes, a discernibly higher level of performance is expected from graduate students, with the nature of this differential performance set by the professor.

Courses numbered 700–799 are structured primarily for graduate students, but upper-division undergraduate students may be admitted if they meet course prerequisites. All students in these courses are expected to perform at the level of graduate students (Graduate I students who ordinarily have not accumulated more than 30 credit hours in a graduate program). Students receive graduate credit if the student was admitted to the Graduate School prior to enrollment; undergraduate students receive undergraduate credit unless the student was preapproved to earn graduate credit for that specific course under the senior rule policy, or was preapproved for graduate credit for that specific course following the student's admission to a dual/accelerated bachelor's to master's program.

Courses numbered 700–899 are designed primarily for Graduate I students. Courses numbered 900–999 are designed primarily for Graduate II students (those who ordinarily have completed more than 30 credit hours in a graduate program).

Courses numbered 800 and above are restricted to graduate students only or undergraduate students approved for enrollment under the senior rule or dual/accelerated degree options.

In special cases, courses in areas where graduate degree programs are not currently available may carry graduate credit and apply toward a graduate degree in a related field or simply count as graduate credit for some nondegree purpose. Any of these courses applied toward an advanced degree program must have the approval of the student's advisor and the chairperson of the department involved in advance of enrollment.

## Graduate Students Requesting Undergraduate Credit

Graduate students who enroll in coursework at the 500 to 700 level may, in the semester of enrollment but before the 20th day of classes (or 10th day for the summer), request that the registrar's office change their enrollment in those courses to the undergraduate level. Once changed to undergraduate level, those courses cannot be changed back to graduate level, and cannot be used toward a graduate degree or certificate. The courses will not be counted in the graduate grade point average, and they will be assessed at the undergraduate tuition rate.

*Note:* Students should be aware that changing the level of these courses to undergraduate could impact federal financial aid disbursement, as well as credit hours needed to maintain full time graduate enrollment. Some tuition benefits for Graduate Assistants may not be awarded for courses changed to undergraduate level credit. It is recommended that students consult with their advisor, the Financial Aid Office (if receiving federal aid) and/or International Student Services (if an international student) before changing the level of their coursework.

## Complaint Procedures, Academic Appeals

### Complaint Procedures

The following statements are designed to provide guidance to graduate students in protesting an actual or supposed circumstance in which they feel they have been wronged.

Conflicts eligible for resolution under these procedures are restricted to academic matters other than grades. Disputes about grades are resolved through the Court of Student Academic Appeals.

These procedures do not include conflicts covered by other policies in the university. This may be initiated for circumstances which are within one year from the time of occurrence.

### Steps in the Process

1. The student should first consult with the faculty member or administrator perceived to be causing the circumstance which has resulted in the feeling of being wronged and attempt to resolve the conflict at that level.
2. If the first step is not applicable or does not resolve the problem, the student should attempt to resolve the issue with the department chairperson, college dean or through the use of department/program structures which may exist for this purpose.
3. If the student has exhausted the remedies provided in steps one and two without success, the student should schedule a meeting with the dean of the Graduate School or the dean's designee (see *Role of the Graduate Dean* below). All requests must be in writing.

### Role of the Graduate Dean

The dean of the Graduate School or the dean's designee receives complaints or protests and decides whether to take direct administrative action to resolve the conflict or refer the complaint to the Graduate Council. A decision of the graduate dean may be appealed to the Graduate Council. If the student wishes to appeal the decision to the Graduate Council, he or she must notify the graduate dean in writing within 30 calendar days of the decision. The graduate dean will then, in writing, provide the student the standard appeal processes that will be followed.

The decision of the dean of the Graduate School on recommendations received from the Graduate Council is final.

### Role of the Graduate Council

In addition to being the elected representative of the graduate faculty, the Graduate Council serves as the Committee on Exceptions in an advisory capacity to the dean of the Graduate School. This responsibility may be discharged by the council acting as a committee of the whole, through subcommittees, or ad hoc committees consisting of selected members of the graduate faculty and graduate student body. Conclusions reached by the Graduate Council will be transmitted as recommendations to the dean of the Graduate School.

The Graduate Council also serves as a committee on appeals if the student is dissatisfied with direct administrative action taken by the graduate dean. In such cases, the judgment of the council is final.

### Court of Student Academic Appeals

The faculty at Wichita State has established a procedure to resolve disputes arising out of the classroom through the Court of Student Academic Appeals. The court hears appeals from students who believe they have been treated unfairly in grading. The court is designed to help resolve differences that cannot be settled within the framework of the student-faculty relationship and offers an important safeguard for students.

The student must file an appeal within one semester after the grade is assigned (excluding summer). The court may waive the time limit if documented and verifiable exceptional circumstances cause a delay in submitting the appeal.

Any student may use the appeals procedure. Forms are available in the Office of Academic Affairs, 109 Morrison Hall. The general procedure is explained to students when they pick up the form.

Appeals for academic misconduct are handled through the Student Academic Integrity process. For more information see section 2.17 of the WSU Policies and Procedures Manual (<https://wichita.edu/policies/procedures/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

## Credit Hour Defined

A *credit hour* is a measure of graduate or undergraduate academic work represented in intended learning outcomes and verified by evidence of student achievement that reasonably approximates not less than one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work for each week of instructional time for approximately 15 weeks for one semester, or an equivalent amount of work over a different amount of time. A class hour at Wichita State University is typically 50 minutes.

## Independent and Directed Study Courses

A primary goal of the Graduate School is to encourage independent scholarship. Thus, graduate students have many opportunities to engage in self-initiated independent study under the supervision of an individual member of the graduate faculty.

In addition to traditional titles, such as thesis, research project, internship and practicum, various departments use various titles to identify opportunities for individual study (e.g., independent study, special problems, directed readings, individual projects and directed study). The following requirements govern enrollment in independent study offerings:

1. Consent of the instructor must be obtained before enrollment;
2. The content of the study should not be the same as that covered in a regular course (exceptions to this requirement must have the approval of the graduate dean before enrollment);
3. Although scheduled on an arranged basis, there must be a sufficient number of contact hours between the student and supervising instructor during the duration of the independent study to ensure consistency with the amount of graduate credit earned in regular course offerings; and
4. No more than 6 credit hours of independent study coursework (excluding dissertation, thesis and other independent study activities that are terminal requirements for a degree) can be used in a degree program.

Some programs have additional program requirements that must be met before enrolling in independent study courses. Students should consult the appropriate program personnel before enrolling.

## Grading System

Wichita State grades include *A* (excellent), *B* (good), *C* (satisfactory), *D* (unsatisfactory), *F* (failure), *W* (withdrawal), *Cr* (credit), *NCr* (no credit), *Bg* (badge), *NBg* (no badge), *S* (satisfactory), *U* (unsatisfactory), *I* (incomplete), *IP* (in progress), *NGS* (no grade submitted), *CrE* (credit by examination), and *Au* (audit). Passing grades include *A*, *B*, *C*, *D*, *Cr*, *CrE*, *Bg* and *S*. The grades *F*, *NCr*, *NBg* and *U* indicate that the quality of work was such that, to obtain credit, the student must repeat regular coursework. A plus/minus grading system was adopted beginning fall 2009. It applies to grades of *A*, *B*, *C* and *D*.

### Credit Points

For each hour of work the student takes, credit points are assigned, as follows, to permit averaging of grades:

A	4.000
A-	3.700
B+	3.300
B	3.000
B-	2.700
C+	2.300
C	2.000
C-	1.700
D+	1.300
D	1.000
D-	0.700
F	0

### Related Details

- *B* or better grade required: *B-* will fulfill this requirement unless otherwise indicated.
- *C* or better grade required: *C-* will fulfill this requirement unless otherwise indicated.
- *I*: Incomplete. An incomplete is a temporary grade assigned by a faculty member that grants a student an extension of time to complete the coursework. The extension of time may not exceed one calendar year from the end of the original semester. It is used in exceptional cases where a student is unable to complete coursework due to circumstances beyond his or her control. Credit is postponed and the course is not included in the student's grade point average until a permanent letter grade is assigned.

*The following conditions govern incompletes:*

- a. When an incomplete grade is assigned, the faculty member may assign a default grade other than an *I*. If the coursework is not satisfactorily completed by the extension date, the *I* will revert to the default grade; if the faculty member does not assign a default grade the *I* will revert to an *F*. When the student completes the work by the extension date, the faculty member must submit an online change of grade request to assign the appropriate grade.
  - b. Subsequent enrollment in the course will be governed by the university repeat policy.
  - c. Students are automatically informed of university policies and procedures when they receive an *I* grade.
- *IP*: In Progress. An *IP* (in progress) grade is temporarily recorded when a course does not have to be completed by the end of the semester of enrollment. The grade submitted when the course has been completed replaces all *IP* grades for that course. This only applies to courses such as Special Topics, Special Projects, Research, Thesis and Dissertation, as specified by the departments.
  - *Bg/NBg*: Badge/No Badge. In order for graduate credit to be awarded for a badge course, the expectation is that the quality of work would be consistent with a letter grade of a *B* (80 percent).
  - *GPA*: Grade Point Average. The graduate grade point average includes only those courses taken at WSU for which graduate credit is earned and for which a regular letter grade (*A, B, C, D* or *F*) is assigned. For repeated courses, only the last assigned grade is used to calculate the WSU graduate grade point average. WSU courses repeated at another institution may be used to fulfill program requirements; however, the repeated course transferred from another institution will not be counted in the WSU graduate grade point average, nor will it replace the grade received at WSU. Courses transferred from another institution and graduate credit courses graded *S* (satisfactory) or *Bg* (badge) do not affect the graduate grade point average. GPAs are calculated and applied to three decimal places (truncated), although only two decimal places print on the transcript.  
To remain in good standing in a graduate degree program, students must maintain a grade point average of at least 3.000 in all courses on the student's graduate plan of study (excluding all transfer work) and for all graduate work taken at WSU. Grades lower than *C*, (generating less than 2.000 grade points), cannot be used to satisfy degree requirements, but such grades earned, beginning fall 2001, may be repeated.

## Repeats

A graduate student may enroll in graduate courses (for credit) a second or subsequent time and have it counted as part of the semester's load. If a course is repeated, the Graduate School will consider that the last grade earned replaces the original grade for purposes of admission and degree completion (in calculating initial and subsequent admission GPAs, in certifying the student's eligibility for graduation, in certifying completion of certificate programs, and in computing the WSU grade point average). Although the last grade earned becomes the grade of record (replaces original grade), the original course grade remains on the graduate transcript.

Repeated courses are identified on the transcript by an extra letter after the grade:

- *I* included in GPA
- *E* Excluded from GPA

Within existing departmental and university guidelines, WSU courses repeated at another institution may be used to complete program

requirements, but the repeat grade will not be counted in the WSU grade point average (as transfer courses are not counted in the WSU grade point average).

## S/U Grades, Audit Credit

### Satisfactory/Unsatisfactory Graded Courses

Certain approved courses that carry graduate credit are graded *S/U* (satisfactory/unsatisfactory) for all students enrolled, and badge courses are graded *Bg/NBg* (badge/no badge). Such courses are identified in the online Schedule of Courses, or students enrolling in special offerings for graduate credit will be informed of the *S/U* grading by the instructor if this system is to be used. Students wishing to transfer graduate coursework graded *S/U* to a degree program at another institution should, before enrolling, inquire of that institution's willingness to accept credit graded in this manner.

No more than 15 credit hours of work graded *S*, *Cr* or *Bg* (if approved through the plan of study) may be used toward the requirements of a graduate degree (excluding dissertation, thesis and other independent study activities that are terminal degree requirements). Refer to individual program areas as they may differ regarding this limit.

### Audit Credit

Students are permitted to attend credit courses on a noncredit basis, with appropriate approval, under an auditor classification. To be enrolled as auditors, students must enroll in the same manner and pay the same fees as for-credit courses at the university. Auditors may participate fully in the class and expect instructor evaluation of their work. Auditors are expected to attend class regularly. The audited course will appear on the transcript with the grade notation of *Au*. Courses taken on an audit basis may be repeated for credit and, if repeated, may be used to fulfill degree requirements if the repeated grade is acceptable. Use of the audit basis for a course must be declared at the time of enrollment. Audited courses are *not* eligible for financial aid.

## Credit for Prior Learning

Wichita State University encourages students to seek credit for knowledge they may have acquired in a variety of ways through the Credit for Prior Learning program (CPL). Students who have had graduate-level education through traditional or nontraditional means, and can demonstrate achievement, may be eligible to earn credit by following WSU's Credit for Prior Learning process. Departments have varying policies as to any CPL that will be deemed equivalent to their courses. The equivalency framework must be approved by the Graduate Council prior to being used. Once the equivalency is determined and posted to the student's record, it is only acceptable in the department/program in which the Graduate Council approved it. The Graduate Council may impose a recertification timeframe for approved CPL equivalencies. CPL credits are posted as transfer work and not counted as hours earned at Wichita State. Visit the Credit for Prior Learning webpage (<http://wichita.edu/priorlearning/>)<sup>1</sup> for more information.

<sup>1</sup> Link opens new window.

## Final Grade Reports

At the end of each semester, students may access their final grades through the myWSU portal (<https://mywsu.wichita.edu/>)<sup>1</sup> on the university website.

<sup>1</sup> Link opens new window.

## Change of Grades Due to Error

Changes of grade due to errors in calculation or reporting may be initiated by an instructor at any time during one calendar year following the assignment of the original grade. A grade change may be initiated by the chairperson of the department that offered the course if, and only if, the instructor is not in residence. The approval of the graduate dean is needed to have the change of grade entered on the student's transcript.

This change of grade policy may not be applied after graduation to courses taken prior to graduation.

## Probation, Dismissal and Amnesty

### Probation

#### Admission on Probation

Students admitted on probation will automatically be moved off probation upon completion of their first 9 credit hours of graded graduate-level coursework at Wichita State University with a minimum 3.000 grade point average. If the student already had a graduate record at WSU, then the student's graduate GPA must also reach 3.000 before being removed from probation. Only courses numbered 500 and above which are letter graded (*A*, *B*, *C*, *D*, *F*) can be used toward the 9 credit hour requirement. *S/U*, *Cr/NCr* or *Bg/NBg* courses will not count toward the 9 credit hour requirement.

#### Academic Probation

Students admitted in good standing to a degree program, or nondegree Category A, will be placed on academic probation if their graduate grade point average falls below 3.000. Students are automatically removed from probation once they achieve a graduate grade point average of 3.000 or higher.

Students admitted on probation or placed on academic probation may not be eligible for assistantship awards or federally-funded financial aid during the semesters in which they are on probation. Students on probation should consult the Graduate School for information on exceptions regarding holding an assistantship while on probation, and with the Office of Financial Aid for information on financial aid policies. Students on probation are not allowed to enroll in more than 12 credit hours during semesters in which they are on probation.

### Dismissal

Students may be dismissed from their degree program or nondegree Category A status if they fail to attain a grade point average of at least 3.000 upon the completion of 9 graduate credit hours after admission on probation, or fail to raise their graduate grade point average to a 3.000 following placement on academic probation, or at any time their graduate GPA drops below a 2.000. Students in this situation may be dismissed from the Graduate School, or may be dismissed from their program and placed into a nondegree Category B status, upon the recommendation of the graduate coordinator of their program.

Students also may be dismissed from a graduate degree program if, in the opinion of the graduate faculty offering the program, they are unable to carry on advanced work or make satisfactory progress toward their degree. Students dismissed for this reason may be transferred to a nondegree category.

Following academic dismissal, students who wish to be considered for readmission to the Graduate School must first complete a minimum of 9 credit hours of 500 level or above, letter-graded coursework, selected with appropriate advisement. These 9 credit hours cannot include a repeat of courses for which graduate credit was previously earned, and cannot be applied toward a graduate degree should the student be readmitted. Such coursework must be completed with

a grade point average of 3.000 on a 4.000 scale or higher for the readmission application to be considered. Meeting this standard, along with both Graduate School and program-specific requirements, will permit consideration of readmission to a graduate program, but is not a guarantee of readmission. Previously dismissed students who are recommended for readmission under this policy will re-enter on probation. Please be aware that coursework completed as an undergraduate student cannot be used toward a graduate degree.

### **GPA Amnesty (Academic Forgiveness)**

In exceptional circumstances, students may file an exception to have a semester's grades (typically first semester) excluded from their overall graduate GPA calculation. This option is intended to give students a chance to be successful in a new program when they find themselves initially in a program that is a poor fit for them. To take advantage of this option, an exception request must be filed. The normal expectation is that the student would change to a new program. While the grades remain on the student's transcript, they will not be reflected in the GPA and will not count against the student with respect to the 3.000 GPA requirement for graduation.

## **Cooperative Education and Work-Based Learning Credit Courses**

Cooperative education is an academic program for undergraduate and graduate students who wish to combine classroom studies with academically related employment by being placed locally and nationally in paid work experiences closely related to their academic majors.

Enrollment in cooperative education courses for graduate credit can be made only through those programs that have an approved graduate-level course (numbered 700 and above) titled Cooperative Education. No other course titles such as independent study, special topics and so forth can be used for cooperative education enrollment. Co-op courses are graded *Cr/NCr*.

Graduate students in good academic standing desiring to participate in cooperative education classes should first consult with their program and the Graduate School. Some programs do not allow cooperative education credits to be used toward graduate degree completion.

The Career Development Center is located in Brennan Hall III, at the corner of 17th Street and Yale Avenue. The telephone number is 316-978-3688.

## **Training in Professional and Scholarly Integrity**

Completion of a training program in professional and scholarly integrity is a graduation requirement for all doctoral students admitted into their program in fall 2012 or later and for all master's students admitted into their program in fall 2013 or later. The training, at a minimum, must cover these four topical areas:

1. Research misconduct;
2. Publication practices and responsible authorship;
3. Conflict of interest and commitment; and
4. Ethical issues in data acquisition, management, sharing and ownership.

Programs may add additional areas of needed training. Contact the program graduate coordinator or department chair for the training content detail and how the training can be received. The Graduate School expects that students will complete this training requirement

by the end of their first year of graduate study at Wichita State, and preferably by the end of their first semester of enrollment.

## **Transfer of Credit from Another University**

Students may transfer, with departmental approval, graduate credit from an accredited graduate school under the following conditions:

1.
  - a. The credit-offering institution is accredited by the cognizant regional accrediting association to offer graduate degree programs appropriate to the level of credit to be transferred;
  - b. the credit is fully acceptable at the issuing institution in satisfaction of its advanced degree requirement;
  - c. the credit must be approved by the student's advisor as applicable in terms of content to the student's program of study at WSU, and must carry a minimum grade value of 3.000 on a 4.000 point scale, with no course having a grade that generates fewer than 3.000 points on a 4.000 scale;
  - d. short courses must be at least three days in length/15 hours of instruction per credit;
  - e. taught by a faculty member of the institution, not a professional brought in to teach the course;
  - f. the course must be clearly marked as graduate level credit, with no other designation, such as: professional development, continuing education, etc.
2. Master's and specialist degree programs may include no more than one-third of the total hours or 12 credit hours whichever is greater, of graduate work completed at another regionally accredited graduate school. (No more than 6 credit hours of the transfer amount may be coursework from an earned master's degree.) Some programs may require lower limits on transfer credit and therefore students should consult individual program descriptions. Doctoral, Master of Fine Arts (MFA), and other more lengthy programs have special transfer credit allowances, as indicated in their program descriptions.
3. Doctoral programs may include a maximum of one-third of the coursework hours required, beyond what may be accepted from a previously earned master's degree.
4. Terminal activity hours specifically related to thesis and dissertation research may not be transferred from another institution. Some exceptions may apply for degree programs in which research hours constitute a larger portion of the program requirements. These instances and specific amounts must be approved by both the department and the Graduate School.
5. An official transcript containing the requested transfer work must be on file in the Graduate School. If such work is shown on the transcripts provided in support of the original admission to the Graduate School, no new record need be provided. Approval by the graduate degree program is necessary to ensure that the coursework has been accepted as an integral part of the candidate's program. Students assume responsibility for initiating the request for transfer of graduate credit as part of their degree plan.
6. Transfer credit that is accepted must have been in courses started 10 years or less before the semester in which the degree work is completed, unless the transfer work is from a previously earned graduate degree, graduate certificate or graduate badge.
7. WSU courses repeated at another institution may be used to fulfill program requirements; however, the repeated course transferred from another institution will not be counted in the WSU grade point average.

8. Transfer hours cannot be used to satisfy the 60 percent course level requirements (see Credits Required (p. 40) for details) unless transfer hours are of appropriate level, and from Kansas Board of Regents institutions.

Graduate credit work from another university is posted on the WSU transcript only after it has been approved for transfer through the approved plan of study, and once the official transcript, sent directly from the transfer institution, has been received and accepted. Only the specific courses approved for transfer are posted. Coursework completed in another graduate program at Wichita State University is not considered transfer credit, therefore transfer credit rules do not apply.

Official Wichita State University transcripts reflect only a total number of transfer hours accepted and the transfer institution's name. Additional detail, including course name and grade, appears only on the unofficial transcript.

## Changing Graduate Programs

Students who wish to change from one graduate program to a new graduate program must submit a new online application, application fee and any required departmental materials. Unlike at the undergraduate level, graduate students must be admitted to a new program; they cannot simply transfer between graduate programs.

If admitted to a new graduate program, it is up to the new program to decide how much (if any) of the student's prior graduate coursework can be used in the new graduate program. All rules relative to time limits and other degree completion requirements apply. Rules relative to "Transfer of Credit" would only apply if the student also has work completed at an institution other than Wichita State. Work completed in a different graduate program at WSU would not be considered transfer credit. As usual, the student will need to declare the coursework they wish to use on the plan of study, which will be approved first by the department, then reviewed by the Graduate School for approval.

## Workshop, Extension, Correspondence Credit and Credit by Exam

Workshop and extension graduate credit courses may be accepted for graduate credit as a part of a graduate degree program under the following conditions:

1. The work is approved by the major department;
2. The work is approved by the dean of the Graduate School; and
3. The work is an integral part of a program planned by the candidate and the advisor, and listed on an approved plan of study.

Graduate credit cannot be earned under a credit by examination program, and correspondence courses cannot be accepted for graduate credit.

Students should be aware that some graduate programs do not allow co-op enrollment to be used to satisfy degree requirements. If the student wishes to use co-op hours towards degree completion, verification that the hours can be used to satisfy degree requirements should be made with the department before enrollment.

## Exceptions to Regulations

Departures from the rules and regulations stated in the Graduate Catalog require the filing and approval of an Application for Exception to Graduate School Regulations form. Such requests must have the approvals indicated on the form and must state in a logical and coherent manner a rational basis for the requested exception. Forms for such

requests are available from the Graduate School, from graduate program areas, and may be downloaded from the Graduate School website. Unusual and/or substantial deviations from stated rules and regulations may require action by the Graduate Council.

## Degree and Certificate Completion

The degree and certificate completion section includes information about what it takes to finish a program at WSU. Information on preparing and getting a plan of study approved, forming a thesis or dissertation committee, and the degree application process is here.

- Commencement (p. 39)
- Graduate Committees (p. 39)
- Credits Required (p. 40)
- Concentrations in Graduate Programs (p. 41)
- Certificates in Graduate Programs (p. 41)
- Badges in Graduate Programs (p. 41)
- Examinations (p. 42)
- Training in Professional and Scholarly Integrity (p. 42)
- Plan of Study (p. 42)
- Progress, Applying for Degree (p. 42)
- Terminal Activity Credit (p. 43)
- Thesis/Dissertation Preparation (p. 43)
- Thesis and Dissertation Embargo (p. 43)
- Time Limits, Residency and Tool/Language Requirements (p. 44)
- Transfer of Credit from Another University (p. 44)
- Program Regulations (p. 44)
- Exceptions to Regulations (p. 45)

## Commencement

WSU holds commencement ceremonies each year in December and in May. All baccalaureate and master's degree candidates for the spring semester are eligible to participate in the May ceremony and all baccalaureate and master's degree candidates for the fall semester are eligible to participate in the December ceremony. Baccalaureate and master's degree candidates for the summer semester are eligible to participate in either the preceding May or following December ceremony.

Doctoral degree candidates are only eligible to participate in a ceremony after all requirements for their degree have been successfully completed (May or December). Summer doctoral graduates are generally not eligible to participate in the preceding May ceremony, but may participate in the following December ceremony. Exceptions may be granted for summer doctoral students if they have successfully defended their dissertation, and the defense paperwork is on file in the Graduate School before the spring ceremony. Contact the degree audit specialist in the Graduate School for details.

More information may be found at the WSU commencement website (<https://wichita.edu/commencement/>).<sup>1</sup>

Diplomas are available for distribution approximately seven weeks following the close of a given semester. Degree recipients may obtain their diplomas from the registrar's office. Diplomas will be mailed from that office upon a written, signed request that includes the name and student identification number of the degree recipient, the complete address where the diploma is to be mailed, the appropriate mailing fee (\$8 inside USA; \$40 outside USA), and a readable copy of the degree recipient's driver's license or other government issued photo ID.

<sup>1</sup> Link opens new window.

## Graduate Committees

### Committee Structure

Committees for program completion exams are recommended by the major department and approved by the dean of the Graduate School.

**Master's Program.** Final oral defense examinations are required of all students presenting theses or research projects. A thesis committee is composed of a minimum of three and a maximum of five graduate faculty, including the chairperson who must be a regular Graduate Faculty member<sup>1</sup>. Faculty holding Affiliate Graduate Faculty status may cochair a thesis committee upon approval of the graduate dean and as long as the committee chair holds regular Graduate Faculty status. At least one committee member, the graduate dean's representative, must be from an academic department outside the major department. A majority of the committee members must be from the major department. No more than one committee member may have Affiliate Graduate Faculty status.

**Doctoral Program.** Final oral defense examinations are required for all students presenting dissertations. The supervisory (dissertation) committee is composed of a minimum of five graduate faculty, with at least four having regular Graduate Faculty membership, including the chairperson. Faculty holding Affiliate Graduate Faculty status may cochair a dissertation committee if the chair holds regular Graduate Faculty status. At least one committee member, the graduate dean's representative, must be from an academic department outside the major department. A majority of the committee members must be from the major department. No more than one committee member may have Affiliate Graduate Faculty status. In addition to guiding the student to successful completion of the dissertation, this committee conducts the final oral defense examination.

Once the supervisory committee has approved the dissertation proposal (via the proposal form submitted to the Graduate School), changes do not normally occur in the committee structure. If committee membership needs to be altered after proposal approval, the committee chair requests such a change via memo to the graduate dean indicating the membership change and the rationale for such a change.

In general, once a major advisor (thesis or dissertation committee chair) has been identified for the student (via plan of study or other document sent to the Graduate School), that advisor stays in place for the duration of the thesis or dissertation. Thesis and dissertation students considering a change in their major advisor should consult departmental guidelines for doing so. Doctoral students changing major advisors would likely need to submit a new proposal.

The oral defense of the thesis or dissertation is scheduled (via the Request to Schedule Oral Defense form submitted to the Graduate School) when the committee chair makes the determination that the student is ready to defend. The Request to Schedule Oral Defense form should be submitted to the Graduate School two weeks prior to the requested defense date. The defense must be held on or before the published deadline for the semester of graduation.

The defense examination is a public oral examination normally lasting about two hours, at which the candidate presents and defends the dissertation or thesis. The examination is chaired by the committee chair. All members of the examining committee (or substitutes appointed by the dean of the Graduate School) are expected to be present throughout the examination. One negative vote from a committee member (not the committee chair) on the examining committee (including substitutes) may occur, and the candidate would still be considered as having passed the examination. A failed oral defense may be retaken based on departmental guidelines. The thesis

or dissertation manuscript must be delivered by the student to the committee members at least two weeks before the date of the oral defense.

<sup>1</sup> See Graduate Faculty (p. 17) for definitions of graduate faculty status.

### **Committee's Role**

#### ***Responsibilities of the Thesis/Dissertation Committee***

Graduate faculty members are called upon to serve on student committees such as those constituted for master's theses, master's and doctoral oral examinations, and doctoral dissertations. The degree of committee involvement in the planning of the student's work varies from program to program. However, at the very least, committee members in oral examinations, thesis defenses and dissertation defenses are expected to have given a thorough and thoughtful reading to all materials. They will have prepared questions to test the student's knowledge, originality and independence of thought so that the faculty member will be able to ascertain the student's success in meeting standards expected for graduate-level performance. Of course, graduate faculty members are expected to exercise independent critical judgment in evaluating students, to use fair and reasonable standards for the level of graduate work being evaluated and to refrain from introducing personal bias.

In general, the committee ensures that students are completing quality research specifically in terms of defining the research question, appropriateness of the research methods, and accuracy of the conclusions drawn from the research (via approval of the research proposal and approval of the student's readiness to defend the completed research). In addition, the committee ensures that the presentation of the document conforms to the writing standards expected for scholarly documents in the discipline (via final copy approval on the Recommendation for Degree form).

#### ***Responsibilities of the Committee Chair***

Supervision (chairing) of graduate students' research takes many forms—guiding the development of research proposals, helping plan master's theses or doctoral dissertations, and determining students' readiness to take written and oral examinations. Although the traditions of different disciplines vary in the closeness of working relationships between graduate students and advisors during thesis, dissertation and exam preparation, advisors are expected to maintain active knowledge about students' plans, work and progress, to read drafts of written work, to give prompt feedback, and to help students shape their work until it meets the standard of quality expected in the field. These qualitative standards range from details of form to more general standards of originality and integrity. The degree to which the chair involves other committee members in the initial stages of the student's research varies across the disciplines. However, at the very least, the research proposal should be approved by the entire committee, and the proposal should contain sufficient substance and detail to determine the quality of the research being proposed.

The committee chair is specifically charged with the following duties:

1. Informing the student of applicable Graduate School regulations;
2. Approving, in consultation with other committee members, the research proposal;
3. Approving, in consultation with the student, those who will serve on the committee;
4. Assisting the student in preparation of the thesis/dissertation document in a format consistent with that expected of a scholarly document in the discipline;

5. Determining, in consultation with other committee members, that the student is ready to defend the thesis or dissertation. Assuring that the student provides the manuscript to the committee members at least two weeks in advance of the oral examination date;
6. Filing the student's request to schedule the oral defense with the Graduate School. The defense examination is a public oral examination normally lasting about two hours, at which the candidate presents and defends the dissertation or thesis. It is generally the student's responsibility to contact committee members and determine a date and time for the oral defense;
7. Assisting the student in announcing the oral defense date and time to the university community;
8. Chairing the oral defense; and
9. Handling the completion of the form: Recommendation for Degree. This form allows committee members and the committee chair to sign off on two substantive items:
  - a. Student's performance during the oral defense (pass/fail), and
  - b. Readiness of the document (thesis or dissertation) for final copy. In this step, committee members ensure that changes in the thesis or dissertation document, requested during the oral exam, are included in the document by the student. Requested changes may pertain to:
    - content issues, and/or
    - formatting/grammatical corrections needed.

Committee members who also wish to see those changes in the document may request to review the document again before the final copy is produced.

In the case of terminal projects (versus theses and dissertations), departmental documentation should clarify the responsibilities of the project chair and committee.

#### ***Responsibilities of the Outside Committee Member***

Although the outside member's area of expertise may not directly pertain to the defense topic, his or her role is very important. As an outside member, the primary responsibility is one of oversight on behalf of the Graduate School assuring that the thesis or dissertation meets the standards of graduate scholarship, that committee members and the student abide by Graduate School regulations, and that the committee treats the student appropriately during the oral defense (e.g., asking questions only germane to the topic, treating the student professionally). Therefore the outside member evaluates the candidate's performance and casts a vote just as other committee members do. In addition, the outside member completes a formal evaluation of the oral defense process by completing an Oral Defense Evaluation form on which the following elements are evaluated:

1. The final exam was conducted in an orderly manner;
2. The oral examination process was fair and reasonable; and
3. The quality of the student's work was consistent with institution-wide expectations and standards.

The completed evaluation form is returned to the Graduate School within three weeks after the oral defense.

## **Credits Required**

All master's degrees require a minimum of 30 credit hours, with some programs requiring more.

The total credit hours required for a doctoral degree varies with the degree program. At least 60 percent of the doctoral credit hours, beyond the master's degree, must be 800 level and above. However, in doctoral

programs that require only a bachelor's degree for admission, students must complete 60 percent of total hours at the 700 level or above, and the majority of total hours (50 percent plus one hour) must be 800 level or above.

Transfer hours cannot be used to satisfy the course level requirements stated above unless transfer hours are of the appropriate level and from Kansas Board of Regents institutions. Workshop hours may not be used to satisfy the course level requirements.

If admitted to a new graduate program, it is up to the new program to decide how much (if any) of the student's prior graduate coursework can be used in the new graduate program. All rules relative to time limits and other degree completion requirements apply. Rules relative to "Transfer of Credit" would only apply if the student also has work completed at an institution other than Wichita State. Work completed in a different graduate program at WSU would not be considered transfer credit. As usual, the student will need to declare the coursework they wish to use on the plan of study, which will be approved first by the department, then reviewed by the Graduate School for approval.

Specific program requirements are listed in the individual program's section of the Graduate Catalog. Transfer credit policies are outlined under the heading "Transfer of Credit from Another University (p. 37)."

## Concentrations in Graduate Programs

Concentrations, consisting of 9–12 credit hours, are offered within existing degree programs where the 9–12 credit hours constitute a coherent academic topic or theme. The concentration may include required and/or elective courses as long as the listing of elective courses (from which the concentration courses are selected) forms a coherent academic topic or theme.

The graduate plan of study, filed with the Graduate School, must specify the name of the concentration and the courses to be taken as concentration courses.

## Certificates in Graduate Programs

Students wishing to pursue a certificate may do so as a part of a degree program, or may do so in a non-degree status. Those who are already admitted to a degree program or appropriate non-degree status may declare their interest in pursuing a certificate by filling out the online Declaration of Intent to Pursue a Graduate Certificate (<https://www.wichita.edu/grad-certificate-declaration/>)<sup>1</sup> form. Students who have not yet been admitted can apply for admission online to either a degree program or, if the preference is to pursue the certificate only, they can apply online for the certificate through the Graduate School website ([https://www.wichita.edu/academics/gradschool/ApplicationandAdmission/CollegeNet\\_Application\\_Instructions.php](https://www.wichita.edu/academics/gradschool/ApplicationandAdmission/CollegeNet_Application_Instructions.php))<sup>1</sup>.

Students completing the requirements for a graduate certificate must submit the Graduate Plan of Study (paper) form and the Application for Graduate Certificate (online) form no later than the 20th day of the fall or spring semester or the 10th day of the eight-week summer term when certificate completion is anticipated.

Transfer hours and substitutions are usually not acceptable for certificate programs. Required certificate coursework previously completed at the undergraduate level must be substituted with an acceptable graduate-level course chosen in consultation with the advisor. The substituted course must be included on the plan of study with an explanation for why the substitution is being made.

The graduate plan of study is prepared in conjunction with the advisor of the graduate certificate program area and is forwarded

to the dean of the Graduate School for formal review and approval. Certificate advisors are expected to inform students that a plan of study, application for graduate certificate form, and \$25 certificate filing fee are required according to the above guidelines. Students filing to earn their certificate who also file to earn their graduate degree the same semester need to file both the application for graduate certificate and the application for degree, and if they file both at the same time, need only pay one \$25 filing fee. Students who file the forms separately pay the fee for each form.

If, after a student files an application for graduate certificate, the certificate is not completed, a new application for graduate certificate and filing fee must be filed within the time frame previously described for the semester in which the requirements for the certificate are again expected to be completed.

If a student later wishes to pursue a graduate degree program, coursework completed as a part of an earned graduate certificate can be used toward the degree program if approved by the department and Graduate School through the plan of study. The 10 year time limit will not apply to coursework from an earned graduate certificate.

A certificate within a degree program that was not applied for at the time the degree was earned can be awarded in a later term, upon student request and application. Certificates not offered when a student attended but now available can also be awarded based on past completion of coursework. All requirements for certificates, as listed in the term the certificate is awarded, must be met. Certificates cannot be awarded more than five years after the student's degree containing the certificate coursework is conferred or after the semester in which the certificate requirements were met. No coursework on the certificate plan of study can exceed the 10 year time limit.

Certificate programs are not eligible for Title IV (federal financial aid) funding unless the certificate is a requirement of the degree program. The exceptions are approved programs of at least one academic year in duration that lead to a certificate and prepare students for gainful employment in a recognized occupation. Approved programs will be designated with disclosure information on the program web page in the applicable academic college.

<sup>1</sup> Link opens new window.

## Badges in Graduate Programs

### Badge Program

Wichita State University's badge program is designed with the working professional in mind so coursework is developed around professional development content and structured in smaller units. In most cases, information is organized into 0.5 credit hour classes (one 0.5 credit hour class equates to one badge) which also makes the workload manageable for someone who works a full-time job. While some badges may be offered in a classroom setting, most are offered online. Enrollment in some badge courses is restricted to nondegree seeking students. Degree-bound students can enroll in certain badge courses that will provide them with additional workplace skills that are in demand by employers. In some cases, badges may be applied towards elective requirements for a degree should the student enter a WSU degree program.

Badges are credit courses that comply with the definition and assignment of credit hour policy and appear on a transcript indicating that academic work has been successfully completed. Students receive a grade of either *Bg* (badge earned) or *NBg* (no badge earned) when the class ends.

*Important note for graduate students:* Badge credits may only be applied as electives toward a graduate degree if the badge(s) was earned as a part of a graduate non-degree program and has been stacked into a specific course; or the badge(s) is rolled into an earned certificate; and the graduate program and Graduate School approve the use of badge credit(s) via the plan of study. All graduate rules with respect to coursework will apply to the badges (e.g. time limits; nonletter graded coursework limits).

For more information visit the Office for Workforce, Professional and Community Education website (<http://wichita.edu/badges/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

## Examinations

Preliminary examinations are administered by several programs to determine students' qualifications for further graduate study. Qualifying and/or comprehensive examinations are required in all doctoral programs. The candidate passes if no more than one negative vote is cast in a five-member committee, and the negative vote does not come from the committee chair.

Most master's programs also require written or oral comprehensive examinations. The candidate passes if no more than one negative vote is cast in a three-member committee, and the negative vote does not come from the committee chair.

Candidates should refer to the appropriate program's section of the catalog or consult with the program for additional information about exams.

## Training in Professional and Scholarly Integrity

Completion of a training program in professional and scholarly integrity is a graduation requirement for all doctoral students admitted into their program in fall 2012 or later and for all master's students admitted into their program in fall 2013 or later. The training, at a minimum, must cover these four topical areas:

1. Research misconduct;
2. Publication practices and responsible authorship;
3. Conflict of interest and commitment; and
4. Ethical issues in data acquisition, management, sharing and ownership.

Programs may add additional areas of needed training. Contact the program graduate coordinator or department chair for the training content detail and how the training can be received. The Graduate School expects that students will complete this training requirement by the end of their first year of graduate study at Wichita State, and preferably by the end of their first semester of enrollment.

## Plan of Study

In order to officially define a program of study for a graduate degree, students must submit the Graduate Plan of Study form leading to admission to candidacy. Submission of the proposed plan of study requires that the conditions of admission (if any) to the program area have been completed. Students must meet program requirements in effect at the time the plan of study is approved by the Graduate School. This approval establishes the student's catalog year for degree completion purposes. It is therefore recommended that the proposed plan identifying the completion option and proposed coursework be submitted no later than by the end of the second semester of

enrollment in the program. Some programs may have earlier deadlines for submitting the plan of study. Early submission of the plan is vital to successful degree completion.

The plan of study is developed in conjunction with the advisor and signed by the candidate, the advisor (and advisory committee members, if applicable), the graduate coordinator or chairperson of the major department, and the dean of the Graduate School. All academic work completed and planned for the degree must be included in the plan of study at the time of submission.

The process of filing an acceptable plan of study is not complete until the student has received a copy of their approved plan of study from the Graduate School by email. If that has not been received within three weeks of submitting the plan to the Graduate School Office, please contact the degree audit staff to inquire about the status of the plan review and approval.

Excess hours beyond the program requirements are not permitted on a graduate plan of study. A variation of one or two hours can occur due to slight variations in course offerings, but a graduate plan of study may not exceed the program requirements by any significant amount.

Students may make changes to the plan of study that are necessary because of enrollment problems or other circumstances by submitting the plan of study form and showing only the necessary revisions. More extensive changes may be accomplished by filing a new plan of study marked *revised plan*.

Failure to submit an acceptable plan of study in a timely manner may result in a delay in graduation or loss of credit planned for use in the program.

Students may not include a graduate-level course on their plan of study that has been previously taken as an undergraduate-level enrollment. In order to graduate, the GPA for all plan of study courses, AND for all graduate level coursework must be a 3.000 or above.

## Progress, Applying for Degree

### Progress

Degree-seeking graduate students and students completing graduate certificate programs are expected to make satisfactory progress toward their degree or certificate in a timely manner (10-year time limit). Some departments take action to dismiss students who absent themselves for periods of a year or more.

Demonstrated suitability for professional practice, as determined by faculty, is also a consideration for remaining in good standing in graduate programs leading to advanced certificates or other endorsements indicating advanced professional practice or achievement.

Students who complete graduate degrees at Wichita State University are transferred to nondegree, Category A, status in the academic field of their graduate degree which allows continued enrollment for graduate credit at WSU. Should such students desire to undertake a new academic program or change advising areas, a new application for admission to the desired area of study and application fee must be filed with the Graduate School office.

### Degree Application

An Application for Degree form (AFD) and \$25 filing fee must be filed online through the *myWSU* portal within four weeks (20 class days) after the beginning of any fall or spring semester in which a student plans to finish all requirements for the degree.

Students planning to graduate at the end of the summer session must file the online application for degree form and fee within two weeks (10 class days) after the beginning of the regular eight-week session even if they plan to enroll for the second four-week session only.

If, after a student files an AFD, the degree is not completed, a new AFD and filing fee must be filed within the time frame just described for the semester in which requirements for the degree are again expected to be completed.

Failure to meet these deadlines will result in a delay in graduation and in the awarding of the diploma.

## Terminal Activity Credit

When a thesis is part of a student's master's degree program, and a dissertation is part of a doctoral student's degree program, thesis or dissertation or research project credit must show on their graduate transcript. The transcript will normally carry the grade of *IP* (in progress) until the thesis or dissertation is completed and the student has met the requirements of the supervisory committee and the Graduate School. An *S* (satisfactory) or grade of *B* or better is required for an acceptable thesis/dissertation. Thesis or dissertation hours in excess of the minimum required for the degree will be graded *S*, or marked as excluded, as appropriate.

Students writing a thesis or dissertation or engaging in research must be enrolled in courses entitled Thesis, Dissertation or Research each semester in which they receive advice, counseling or research direction from their advisors. This includes the semester of graduation. Enrollment is for the number of credit hours that accurately reflects the demands of the student on university faculty and facilities. The minimum enrollment for doctoral students is 2 credit hours of the terminal activity.

Students engaged in terminal activities other than thesis, dissertation or research (e.g., internship, practicum, portfolio, directed project) must be enrolled in courses carrying these titles each semester in which they receive advice, counseling or direction from their advisors. This includes the semester of graduation. An *S* (satisfactory) or grade of *B* or better is required for an acceptable terminal activity. Terminal activity hours in excess of the minimum required for the degree will be graded *S*, or marked as excluded, as appropriate.

## Thesis/Dissertation Preparation

All students are required to submit their theses or dissertations through an electronic process called ETD (Electronic Theses and Dissertations). The thesis/dissertation is converted to a Portable Document Format (PDF) file for electronic submission to the Graduate School. No bound copies are required from the student. Prior to ETD submission, all students are required to make an appointment with the degree audit coordinator in the Graduate School for a format check of the paper copy. The PDF is uploaded to the Blackboard Learning System using the digital drop box once approval has been given by the Graduate School. The final copy of the ETD is sent to the university library. The student's ETD contributes to worldwide graduate education as WSU builds a Networked Digital Library of Theses and Dissertations (NDLTD) in collaboration with other scholarly institutions.

For additional information about the preparation of the thesis or dissertation, the student is referred to the Graduate School publication, Guide to the Preparation of Theses and Dissertations (<http://wichita.edu/gradforms/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

## Thesis and Dissertation Embargo

An important goal of Wichita State University is to produce and disperse new knowledge. As such, every possible effort should be made to ensure that the scholarship produced at the university is disseminated as widely as possible. However, there are situations where publicly releasing research results, creative activities and other scholarly projects too soon may jeopardize the ability of the owners of the intellectual property to obtain a patent or subsequently publish the work. Further, there may be cases when classified research is being conducted that cannot be published at all. As a result, this policy provides a framework to allow graduate student theses and dissertations to be embargoed, while simultaneously underscoring the university's commitment to dissemination of its produced knowledge.

### Temporary Embargo

In consultation with the faculty thesis or dissertation advisor, a graduate student may request an embargo of their work. The dean of the Graduate School will embargo the academic document in question (i.e., prohibit public disclosure) for a period of one year from the date of deposit. In reviewing such requests, the dean should consider the full implication of embargoing ongoing and future academic and scholarly work at the university.

If a request to temporarily embargo a thesis or dissertation is approved, the embargoed thesis or dissertation will be made unavailable within the university's institutional repository. However, bibliographic information (i.e., author, advisor, title and date) will be publicly available. The dean of the Graduate School will inform the dean of University Libraries of all embargo decisions made relative to this policy and will provide pertinent information concerning a thesis or dissertation to be embargoed, such as title, student name, graduation date, department and thesis or dissertation director's name. The completion of the requirements for a graduate degree will not be affected in any way by an embargo of a thesis or dissertation.

At the end of the one year period, the embargoed thesis or dissertation will automatically be released without further action. If an extension of the embargo is required, that request must be made to the dean of the Graduate School before the end of the embargo with appropriate justification. The threshold to demonstrate continued need of the embargo is high, and it is not expected that this would be a routine occurrence.

Pursuant to the university patent policy, it is the responsibility of the faculty advisor and the student to protect the intellectual property during the conduct of the project and the writing of the document, and in any examinations over the contents of the document. The faculty advisor and the student should consult with the dean of the Graduate School and the director of technology evaluation at WSU Ventures about these matters as early as possible.

### Classified Research

In certain instances, graduate students may be involved in classified research that indefinitely prevents public disclosure of the results. These situations must have approval from the dean of the Graduate School before the research is started. In particular, the dean of the Graduate School will work with the student, faculty thesis or dissertation advisor, and (perhaps) sponsor to come to an agreement of all publication restrictions prior to initiating the project. Indefinite embargoes, beyond what is detailed in the above section, will typically not be approved once the project is underway.

## Time Limits, Residency and Tool/ Language Requirements

### Time Limits

Students have 10 years in which to complete a graduate degree program starting from the first semester the student begins the coursework that is designated on the plan of study. Graduate programs may impose further restrictions, please consult individual programs in this catalog for further information.

Time limits are not imposed on transfer courses from a previously awarded graduate degree or from a graduate certificate awarded by Wichita State University. Courses completed more than 10 years before the degree is granted may not be used to meet degree requirements.

### Residency Requirement

Doctoral students are required to spend at least two continuous semesters (summer excluded) as full-time students.

### Tool or Language Requirements

The Graduate School has no overall tool or language requirements, although such requirements have been established by some programs. Students should consult an individual program's section of the Graduate Catalog for information regarding such requirements.

Any tool subjects (e.g., foreign language, computer programming, statistics) required by the major program must be identified in the student's plan of study. The completion of this tool is not required prior to submission of the plan of study but is required prior to graduation.

## Transfer of Credit from Another University

Students may transfer, with departmental approval, graduate credit from an accredited graduate school under the following conditions:

1.
  - a. The credit-offering institution is accredited by the cognizant regional accrediting association to offer graduate degree programs appropriate to the level of credit to be transferred;
  - b. the credit is fully acceptable at the issuing institution in satisfaction of its advanced degree requirement;
  - c. the credit must be approved by the student's advisor as applicable in terms of content to the student's program of study at WSU, and must carry a minimum grade value of 3.000 on a 4.000 point scale, with no course having a grade that generates fewer than 3.000 points on a 4.000 scale;
  - d. short courses must be at least three days in length/15 hours of instruction per credit;
  - e. taught by a faculty member of the institution, not a professional brought in to teach the course;
  - f. the course must be clearly marked as graduate level credit, with no other designation, such as: professional development, continuing education, etc.
2. Master's and specialist degree programs may include no more than one-third of the total hours or 12 credit hours whichever is greater, of graduate work completed at another regionally accredited graduate school. (No more than 6 credit hours of the transfer amount may be coursework from an earned master's degree.) Some programs may require lower limits on transfer credit and therefore students should consult individual program descriptions. Doctoral, Master of Fine Arts (MFA), and other more lengthy programs have special transfer credit allowances, as indicated in their program descriptions.

3. Doctoral programs may include a maximum of one-third of the coursework hours required, beyond what may be accepted from a previously earned master's degree.
4. Terminal activity hours specifically related to thesis and dissertation research may not be transferred from another institution. Some exceptions may apply for degree programs in which research hours constitute a larger portion of the program requirements. These instances and specific amounts must be approved by both the department and the Graduate School.
5. An official transcript containing the requested transfer work must be on file in the Graduate School. If such work is shown on the transcripts provided in support of the original admission to the Graduate School, no new record need be provided. Approval by the graduate degree program is necessary to ensure that the coursework has been accepted as an integral part of the candidate's program. Students assume responsibility for initiating the request for transfer of graduate credit as part of their degree plan.
6. Transfer credit that is accepted must have been in courses started 10 years or less before the semester in which the degree work is completed, unless the transfer work is from a previously earned graduate degree, graduate certificate or graduate badge.
7. WSU courses repeated at another institution may be used to fulfill program requirements; however, the repeated course transferred from another institution will not be counted in the WSU grade point average.
8. Transfer hours cannot be used to satisfy the 60 percent course level requirements (see Credits Required (p. 40) for details) unless transfer hours are of appropriate level, and from Kansas Board of Regents institutions.

Graduate credit work from another university is posted on the WSU transcript only after it has been approved for transfer through the approved plan of study, and once the official transcript, sent directly from the transfer institution, has been received and accepted. Only the specific courses approved for transfer are posted. Coursework completed in another graduate program at Wichita State University is not considered transfer credit, therefore transfer credit rules do not apply.

Official Wichita State University transcripts reflect only a total number of transfer hours accepted and the transfer institution's name. Additional detail, including course name and grade, appears only on the unofficial transcript.

## Program Regulations

1. To pursue a graduate degree or graduate certificate at Wichita State, students must be admitted to the specific program for which they are seeking a degree or certificate. Students may not be admitted to or pursue more than one graduate degree program at a time.
2. In order to graduate, students must have an overall grade point average of at least 3.000 for all WSU courses on the Plan of Study **AND** for all graduate work completed at Wichita State University. Grades lower than C, including C-, cannot be used to satisfy degree requirements, but such grades earned may be repeated.
3. Any course taken as a part of an undergraduate degree may not be repeated for graduate credit except when the course content is substantially different (as indicated by instructors).
4. Coursework taken as an undergraduate student that is a requirement for a graduate degree or graduate certificate must be substituted for acceptable graduate level coursework approved by the department and Graduate School via the plan of study.

5. All students who wish to earn a degree or certificate are required to file a plan of study. An approved plan of study should be on file as early in the program as is feasible to ensure students are enrolling the correct courses for their degree or certificate program.
6. All master's degrees require a minimum of 30 credit hours, with some programs requiring more.
7. The total credit hours required for a doctoral degree varies with the degree program. At least 60 percent of the doctoral credit hours, beyond the master's degree, must be 800 level and above. However, in doctoral programs that require only a bachelor's degree for admission, students must complete 60 percent of the total credit hours at the 700 level or above, and the majority of the total credit hours (50 percent plus one hour) must be 800 level or above.
8. Transfer hours cannot be used to satisfy the course level requirements stated above unless the transfer hours are of the appropriate level, and from Kansas Board of Regents institutions. Workshop hours may not be used to satisfy the course level requirements. Transfer hours cannot be used in a graduate certificate.
9. Specific program requirements are listed in the individual program's section of the Graduate Catalog. Transfer credit policies are listed in the appropriate section of the Graduate Catalog.
10. Upon the advice and consent of the major department, a maximum of 6 credit hours of work in one earned master's degree program may be applied to a second master's degree.
11. No more than 6 credit hours of independent study coursework (excluding dissertation, thesis and other independent study activities that are terminal requirements for a degree) can be used in a degree program.
12. No more than 15 credit hours of work graded *S*, *Cr* or *Bg* (when on an approved plan of study) may be used toward the requirements of a graduate degree (excluding dissertation, thesis and other independent study activities that are terminal requirements for a degree). Refer to individual program areas as they may differ regarding this limit.
13. Master's and specialist degree programs may include no more than one-third of the total hours or 12 credit hours whichever is greater of graduate work completed at another institution accredited to offer graduate degree programs (exclusive of hours in a previous master's degree, from which a maximum of 6 credit hours can be transferred). Departments may require lower limits on transfer credit and, therefore, students should consult individual program descriptions. Doctoral, Master of Fine Arts (MFA) and other more lengthy programs have special transfer credit allowances, as indicated in their program descriptions.
14. Transfer credit that is accepted must have been in courses started 10 years or less before the semester in which the degree work is completed, unless the transfer work is from a previously earned graduate degree, graduate certificate or graduate badge.
15. All credits taken in a graduate program at WSU where no graduate degree was conferred, are eligible to be used in a new graduate degree program at WSU, if the credit meets all other rules relative to time limits, etc., and if approved by the new program and the Graduate School via the plan of study. Transfer credit rules only apply to students transferring credits from another institution.
16. **Enrollment in Final Semester.** Graduate students must be enrolled in appropriate graduate-level coursework during the semester of graduation. Such enrollment recognizes the use of university resources, including faculty and staff, as part of degree completion. The minimum enrollment for thesis students is 1 credit hour of thesis. The minimum enrollment for doctoral students is 2 credit hours of dissertation.
17. Doctoral students are required to spend at least two continuous semesters (summer excluded) as full-time students.
18. Faculty members of Wichita State University who hold the rank of assistant professor or higher cannot earn graduate degrees from Wichita State except for unassigned faculty (not attached to a particular college) or faculty members granted specific approval by the Graduate Council. Full-time faculty members may not pursue more than 6 credit hours of graduate credit per semester.
19. Doctoral students admitted fall 2012 or later and master's students admitted fall 2013 or later are required to complete Professional and Scholarly Integrity Training (PSIT) as determined by their department. This training should be completed within the first year of enrollment in the program.
20. All graduate students must file an application for degree or application for graduate certificate by the 20th day of classes (or 10th day of classes in summer) in the semester they will complete all requirements in order for their degree or certificate to be awarded.

## Exceptions to Regulations

Departures from the rules and regulations stated in the Graduate Catalog require the filing and approval of an Application for Exception to Graduate School Regulations form. Such requests must have the approvals indicated on the form and must state in a logical and coherent manner a rational basis for the requested exception. Forms for such requests are available from the Graduate School, from graduate program areas, and may be downloaded from the Graduate School website. Unusual and/or substantial deviations from stated rules and regulations may require action by the Graduate Council.

## Financial Opportunities

Students wishing to be considered for assistantships, fellowships, scholarships or other forms of financial awards should indicate their interest to their graduate coordinator or program chair as soon as possible after notification of admission.

Students must be fully admitted to a degree program in either full-standing, conditional or probationary status to be considered for graduate assistantship positions, fellowship awards or federally-funded financial aid. Students who are admitted on probation or placed on academic probation following admission may be eligible for assistantship positions under certain circumstances. If a student is admitted under conditional or probationary status, they must continue to meet the conditions of their admissions to continue receiving federally-funded financial aid. Please consult the appropriate offices for details on eligibility.

## Assistantships

Each year Wichita State University awards a number of assistantships for advanced study. Such positions are available in most departments offering advanced degrees. Assistantships are awarded primarily on the basis of a student's academic record and demonstrated teaching, research and/or leadership abilities, together with any other available supporting evidence.

Students must be admitted to a degree program in either full-standing or conditional status. Students admitted on probation or placed on academic probation following admission may be eligible for assistantship awards under certain circumstances. Undergraduate students admitted under the senior rule option, or in accelerated bachelor's to master's programs are not normally considered for assistantship awards.

Recipients of a full-time graduate assistantship may not hold appointments totaling more than 20 hours per week and may not hold other WSU remunerative employment without the written approval of the department chairperson and dean of the Graduate School through an approved exception form.

A *graduate teaching assistantship* may qualify the recipient for a full or partial waiver of in-state tuition for up to 12 credit hours of graduate-level coursework numbered 500 and above. Graduate students must provide service from the 20th day of the semester through the remainder of the semester to be eligible for the nonresident to resident tuition waiver. Only graduate courses numbered 500 and above are eligible for full or partial waiver of tuition for graduate teaching assistants. 500 level coursework taken for undergraduate credit (such as prerequisite coursework) is not eligible for the full or partial tuition waiver for graduate teaching assistants. Potential applicants for graduate teaching assistantships who are non-native speakers of English must first attain a score of 23 or above on the speaking portion of the internet based TOEFL (IBT), or a score of 50 or above on the SPEAK, or a score of 7.0 or higher on the speaking portion of the IELTS exam. All students who are offered a graduate teaching assistantship, whether native or non-native speakers of English, must have their spoken English evaluated by a departmental assessment committee. The committee is appointed by the department chair or director, and is composed of at least three members: two faculty members and one student. The committee judges the graduate assistant's spoken English according to the Spoken English Screening Form (SESF) scale of 1–4. A rating of 1 or 2 indicates competency in spoken English and is required for appointing the candidate. For non-native speakers of

English, this is required in addition to the TOEFL/IELTS/SPEAK mentioned previously.

The department chairperson or graduate coordinator should be contacted for further information. The actual dollar amount of an assistantship varies according to the length of the appointment, the number of hours worked per week and the funding base within each department. At Wichita State University, assistantships for 20 hours of work per week for a nine-month period range from \$5,800 to \$25,000. This average is provided for information purposes. Assistantship appointments are made on a semester basis.

Graduate students holding assistantships during a fall or spring semester are expected to enroll in at least 9 credit hours of coursework, of which 6 credit hours must be at the graduate level and taken for graduate credit. Exceptions to allow graduate assistants who hold a 20-hour appointment to be enrolled in 6–8 credit hours may be approved by the program where the student holds admission. Special consideration for thesis and research enrollments may be obtained by petitioning the Graduate School through the exceptions process.

As a part of the hiring process at WSU, all graduate assistants are required to submit to a criminal background check before employment commences.

## Graduate School Awards

The Graduate School oversees and distributes general awards and certain fellowship activities as described below. Additional information can be found on the Graduate School awards webpage (<http://wichita.edu/gradschoolawards/>)<sup>1</sup>.

### ***Dora Wallace Hodgson Outstanding Graduate Student Awards***

Funding for the Graduate School Outstanding Graduate Student awards is made possible through generous donations to the WSU Foundation from the Dora Wallace Hodgson estate. Awards are given for the following categories: Dora Wallace Hodgson Outstanding Doctoral Student and Dora Wallace Hodgson Outstanding Master's Student.

### ***Delano Maggard, Jr. Graduate Research Grant***

The Maggard research grant supports graduate students in their pursuit of independent research and investigation in their field of major interest. Funds are provided through the WSU Foundation, Delano Maggard, Jr. endowed account. Applicants must be in full-standing status in a degree program. Applicants must be enrolled in the semester prior to the semester of award and show satisfactory academic progress in coursework related to the proposed course of study.

### ***Michael P. Tilford Graduate Fellowship***

The Michael P. Tilford Graduate Fellowship, established in memory of former WSU Graduate School Dean Michael P. Tilford, is awarded to a currently enrolled full-time graduate student in good academic standing in any graduate degree program. Preference is for a minority student who is a U.S. citizen. Financial need is also considered.

### ***Educational Opportunity Fund (Part-Time Students)***

Funds are provided by the Student Government Association from student fees for new and continuing part-time students with financial need. Tuition awards are made contingent on annual funding to full-standing degree-bound students who are enrolled in at least 3 credit hours but not more than 8 credit hours, and who qualify for financial assistance. A financial statement form is part of the application. Please contact the Graduate School or visit the Graduate School website for application deadlines and details.

**Student Travel – Special Research Fellowships**

Special research fellowships encourage research among graduate students and recognize their superior achievement by providing financial support to students who present the results of their scholarly research at professional meetings and conferences.

requests are available from the Graduate School, from graduate program areas, and may be downloaded from the Graduate School website. Unusual and/or substantial deviations from stated rules and regulations may require action by the Graduate Council.

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*In addition to the above awards, the Graduate School distributes the following awards based on financial need and other considerations:*

- Dr. Laiten L and Verna Nye Camien Fellowship
- E.L. Cord Foundation Graduate Fellowship
- Ollie A. and J.O. Heskett Graduate Fellowship
- Jayne and Glenn Milburn Fellowship
- Donald D. Sbarra Endowed Fellowship
- Lawrence and Pauline Stettheimer Endowed Fellowship

## Federal Financial Assistance, Work Opportunities

### Federal Financial Assistance

WSU's Office of Financial Aid helps graduate students secure federal financial aid based on each individual student's eligibility for aid.

The first step in applying for federal aid is to complete a free application for Federal Student Aid (<http://fafsa.ed.gov>)<sup>1</sup> and to request the results be sent to Wichita State University (school code 001950). If financial aid is required, the Graduate School strongly recommends that the completed application for admission to Graduate School is received in the Graduate School by February 1 for the following fall semester. Graduate students who are fully admitted into eligible programs are eligible for federal financial aid. Students who are not fully admitted into an eligible degree or certificate program are not eligible for federal student aid. Students fully admitted, but under conditional or probationary status, must continue to meet the conditions of their admissions to continue receiving federally-funded financial aid.

Students must be enrolled in at least half-time status to qualify for federal aid. Half-time status for graduate students is defined as 5 credit hours for the fall or spring semesters, and 3 credit hours for the summer session. For additional information, visit the financial aid website (<http://wichita.edu/financialaid/>)<sup>1</sup>.

Additional information about financial aid policies is available at the Financial Aid Terms and Conditions (<http://wichita.edu/finaidpolicy/>)<sup>1</sup> webpage.

<sup>1</sup> Link opens new window.

### Work Opportunities

Many graduate students participate in the university's Cooperative Education and Work-Based Learning Program. In this program, students work at the local, state or national level in well-paying jobs that complement their academic fields of study. Students earn academic credit while learning degree-related skills and earning money to support their graduate studies. Students must have departmental permission to participate.

### Exceptions to Regulations

Departures from the rules and regulations stated in the Graduate Catalog require the filing and approval of an Application for Exception to Graduate School Regulations form. Such requests must have the approvals indicated on the form and must state in a logical and coherent manner a rational basis for the requested exception. Forms for such

## General Information

### Wichita State University Profile

Wichita State is distinctive for opening pathways to applied learning, applied research and career opportunities, alongside unsurpassed classroom, laboratory and online education. The university's beautiful 330-acre main campus is a supportive, rapidly expanding learn-work-live-play environment, where students gain knowledge and credentials to prepare for fulfilling lives and careers.

Students enjoy a wide selection of day, evening and summer courses in more than 200 areas of study at the main campus and other locations throughout the metro area and online. WSU's approximately 16,000 students come from every state in the U.S. and more than 115 other countries. About eight in 10 students are from Kansas, representing virtually every county in the state.

Nearly 72 percent of the students attend full time, while the remainder attend part time and take advantage of gaining professional experience at leading local employers including Airbus, Bombardier Aerospace, Spirit AeroSystems, Textron Aviation (including Beechcraft and Cessna), Koch Industries, Wichita Public Schools, Ascension Via Christi, Wesley Medical Center, AGH CPAs and Advisors, BKD CPAs and Advisors, Cargill, Evergy, Johnson Controls, and Cox Communications. Students in every field of study find opportunities in Wichita as varied as financial accounting, performing in the Wichita Symphony Orchestra, and creating social media content for Division I athletic teams. Many students take advantage of WSU's work-based learning program, which has partnerships with more than 500 employers throughout the United States.

Wichita State, which is classified by the Carnegie Foundation as a doctoral granting, high research institution, offers undergraduate and graduate degree programs culminating in 62 bachelor's degree programs, an associate's degree, 13 doctoral degrees, 50 master's degrees, a Specialist in Education degree and 98 credit bearing certificates in eight colleges: Dorothy and Bill Cohen Honors College, W. Frank Barton School of Business, College of Applied Studies, College of Engineering, College of Fine Arts, College of Health Professions, College of Innovation and Design, and the Fairmount College of Liberal Arts and Sciences.

The Higher Learning Commission and 21 program-specific accrediting agencies accredit WSU. A listing of WSU programs and degrees is located in both the graduate and undergraduate catalogs.

Wichita State has more than 550 full-time faculty, with more than 85 percent of the faculty having earned the highest degree in their field. Academic programs also draw on the professional expertise of adjuncts from Wichita-based businesses and organizations. Instructors and guest lecturers include those actively practicing their professions in venues from boardrooms to technology startups to courtrooms to operating rooms to the world's great opera stages.

In the past five years, WSU's main campus in northeast Wichita has been expanded by 120 acres with the conversion of a golf course to a new, interconnected community of academic and partnership buildings, laboratories and mixed-use areas known as Innovation Campus.

Buildings housing advanced manufacturing engineering laboratories; academic, corporate and government researchers; the city-county law enforcement training center; and a community makerspace are open on the expanded east side of campus. Students work in state-of-the-art laboratories and learn from outstanding faculty and professionals.

High-quality student housing opened in the past three years. A food truck plaza, late-night restaurant, outdoor walking-running paths and a freestanding Starbucks are open. A YMCA/Student Wellness Center, Hyatt Place Hotel, and Advanced Virtual Engineering and Testing Laboratories and other new testing laboratories opened in 2020.

WSU has relationships with more than 4,000 students and associated instructional staff and facilities through the Wichita State Campus of Applied Sciences and Technology, known as WSU Tech. The Higher Learning Commission-accredited affiliate is already the state's largest technical college. It offers more than 100 programs of study in areas including aviation, health care, manufacturing, design and business.

WSU and WSU Tech share recent or renovated facilities housing the National Center for Aviation Training, health care education programs and media production facilities.

WSU is enhancing curriculum, programs and facilities to meet student, community and industry needs. Four recent examples:

- The Bachelor of Applied Arts degree in four areas of media arts – animation, audio production, filmmaking and game design. Some of the courses in the program are offered at Shocker Studios, a 35,000-square foot, state-of-the-art production facility.
- The Physician Assistant (PA) and Physical Therapy (PT) programs are housed alongside WSU Tech health professions programs in a renovated building in the vibrant Old Town section of downtown Wichita. The state-of-the-art facility features large classrooms, modern work spaces, a simulation hospital with a general emergency room, labor and delivery and exam rooms, a surgical lab with cutting-edge simulators, a SynDaver (synthetic human) lab, and a student lounge.
- The College of Innovation and Design encourages interdisciplinary collaboration and is home to the Master in Innovation Design (MID) degree that merges arts, science and technology curricula, creating opportunities for students and faculty to collaborate across WSU's colleges. The MID program is individualized for each student and focuses on developing students' *design thinking skills*. These include the capabilities to develop creative solutions, effectively communicate, practice entrepreneurship and develop prototypes.
- WSU's badge program makes workforce training and continuing education accessible and affordable. Each badge is designed with the practicing professional in mind so coursework can be completed online and at the student's own pace. A badge is worth 0.5 credit hours and equates to about 22.5 hours of combined online instruction and study time. This makes workloads more manageable for someone who is already busy with a full-time job and/or family.

All of these efforts are in service of Wichita State University's focus to be a world leader in applied learning and its mission as an essential educational, cultural and economic driver for Kansas and the greater public good.

WSU's first commitment is to excellence in instruction, but it also has strong commitments to excellence in research and public service as integral parts of its educational mission.

For example, the National Institute for Aviation Research consistently receives funding from such agencies as the FAA and NASA to continue important research in such areas as composites and aging aircraft. According to the National Science Foundation, WSU is one of the top research universities for aerospace research in the country. It is the top industry funded aviation research university in the nation.

Another example: WSU's Regional Community Policing Training Institute is helping train law enforcement and other officials in the region on such relevant topics as counterterrorism. The Attorney General of the United State visited WSU's Law Enforcement Training Center in 2019 to learn about the university's cooperation with law enforcement on ballistics testing.

Businesses, local government, industry and nonprofits benefit from such WSU resources as the Mid-America Manufacturing Technology Center, Small Business Development Center, Center for Management Development, Center for Entrepreneurship, Community Engagement Institute and Hugo Wall School of Public Affairs.

WSU offers numerous recreational and cultural opportunities through the many concerts, recitals, theatre, dance and other productions performed in its fine arts facilities. The Ulrich Museum of Art specializes in contemporary art. More than 75 pieces of sculpture by internationally known artists adorn the campus as part of the Martin H. Bush Outdoor Sculpture Collection. The university's premier cultural collection of Asmat art, one of the largest such collections in the United States, is on display in its Lowell D. Holmes Museum of Anthropology.

As an NCAA Division I institution, WSU fields teams in tennis, cross country, basketball, track, golf, baseball, volleyball and softball. The men's basketball team reached the NCAA tournament for seven years in a row, including the Final Four in 2013. In 2017, the university accepted the invitation to join the American Athletic Conference.

In club and competitive sports, Wichita State men's and women's bowling teams have won 20 national championships. Men's and women's rowing teams compete in state, regional and national championships. The rowing teams occupy a new boathouse on the Arkansas River, at a prime location in downtown Wichita. Esports is an up and coming feature of student life. The Esports Varsity Team and the Esports club both have a home in the Heskett Recreation Center on campus.

More than 200 social and special interest clubs provide opportunities for students to meet and work with others who share their interests. Twenty-five national sororities and fraternities are active on campus.

The 330-acre traditional campus is modern and accessible and at the same time retains the flavor of the university's heritage, combining distinctive Georgian-style architecture with more modern buildings of stone and brick that are accentuated by attractive landscaping. Internationally, the most-recognized building on the WSU campus is the Corbin Education Center. It was one of the last buildings designed by one of America's best-known architects, Frank Lloyd Wright.

To find out more about WSU, go to the WSU website (<http://wichita.edu>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

## Mission

The mission of Wichita State University is to be an essential educational, cultural and economic driver for Kansas and the greater public good.

## Vision

To be one of the nation's most innovative public research universities, known for providing impactful student experiences and driving prosperity for the people and communities we serve.

## Distinctive Values

At Wichita State University, we value:

- Seizing opportunities,
- Adaptive approaches,
- Positive risk-taking,
- Innovation and creativity, and
- Knowledge creation and dynamic educational opportunities.

## 2021-2022 University and Academic Officers

Richard Muma, *interim president*

Shirley Lefever, *interim executive vice president and provost*

John Tomblin, *senior vice president for industry and defense programs, executive director of the National Institute for Aviation Research*

Sheree Utash, *president of WSU Tech and vice president of Workforce Development for WSU*

Darron Boatright, *director of athletics*

Stacia Boden, *general counsel*

Shelly Coleman-Martins, *vice president for strategic communications and marketing*

Marche Fleming-Randle, *vice president for military, veterans and first responders*

Werner Golling, *vice president for finance and administration*

Teri Hall, *vice president for student affairs*

Kaye Monk-Morgan, *vice president for strategic engagement and planning*

Andrew Schlapp, *executive director, government relations and strategy, executive director to the Board of Trustees*

Kathy Downes, *dean of university libraries*

Kimberly Engber, *dean of the Dorothy and Bill Cohen Honors College*

Larisa Genin, *dean of the W. Frank Barton School of Business*

Gregory Hand, *dean of the College of Health Professions*

Andrew Hippisley, *dean of Fairmount College of Liberal Arts and Sciences*

Rodney E. Miller, *dean of the College of Fine Arts*

Jeremy Patterson, *dean of the College of Innovation and Design,*

*interim executive director for innovation and new ventures*

Coleen Pugh, *dean of the Graduate School and associate vice president for research*

Steven Skinner, *interim dean of the College of Engineering*

Clay Stoldt, *interim dean of the College of Applied Studies*

## Kansas Board of Regents <sup>1</sup>

Blake Flanders, *president and CEO*

## Board Members

Shane Bangerter, *Dodge City*

Ann Brandau-Murguia, *Kansas City*

Bill Feuerborn, *Garnett, chair*

Cheryl Harrison-Lee, *Gardner, vice chair*

Mark Hutton, *Andover*

Shellaine Kiblinger, *Cherryvale*

Jon Rolph, *Wichita*

Allen Schmidt, *Hays*

Helen Van Etten, *Topeka*

<sup>1</sup> As of January 7, 2021

## WSU Tech

The Higher Learning Commission approved an official affiliation between Wichita State and Wichita Area Technical College (WATC), effective January 1, 2018. WATC became the WSU Campus of Applied Sciences and Technology, known as WSU Tech, enhancing the already strong partnership between the two institutions. The affiliation allows

both institutions to better fulfill their missions by increasing the availability and quality of opportunities for students, while directly meeting the core workforce needs of the state. Coursework taken at one institution will continue to be reflected as transfer work on the record of the other institution.

### WSU History

Wichita State University began as Fairmount College, a Congregational institution, in 1895. In 1926, by a vote of the citizens of Wichita, the college became the Municipal University of Wichita, the first municipal university west of the Mississippi River. After 38 years as a municipal university, WSU again changed its status July 1, 1964, when it entered the state system of higher education. The citizens of Wichita had voted to move the university into the state system and when the measure passed the Kansas Legislature, Wichita endowed WSU with a 1.5 mill levy, a tax that was later adopted by Sedgwick County. The WSU Board of Trustees administers these funds and other local assets of the university.

During its history, the university has had 14 presidents<sup>1</sup>:

Nathan J. Morrison, 1895–1907;  
Henry E. Thayer, 1907–1914;  
Walter H. Rollins, 1914–1921;  
John Duncan Finlayson, 1922–1927;  
Harold W. Foght, 1927–1933;  
William M. Jardine, 1934–1949;  
Harry F. Corbin, 1949–1963;  
Emory Lindquist, 1963–1968;  
Clark D. Ahlberg, 1968–1983;  
Warren B. Armstrong, 1983–1993;  
Eugene M. Hughes, 1993–1998;  
Donald L. Beggs, 1999–2012;  
John W. Bardo, 2012–2019;  
Jay Golden, 2019–2020; and  
Richard D. Muma (interim), 2020–present.

<sup>1</sup> Andy Tompkins, interim president, April 8, 2019 – December 17, 2019.

## University and Specialty Accreditation

Wichita State University has held regional accreditation since 1927 from the Higher Learning Commission. The university will undergo its next comprehensive evaluation during the 2026-2027 academic year. Additionally, several WSU programs hold specialty accreditation. The accreditation status of those programs can be found on the Academic Affairs: Assessment webpage (<https://www.wichita.edu/AccreditationReport/>)<sup>1</sup> or in information published by the accredited programs. In some cases, regional and specialty accreditation status is required by some programs for its graduates to sit for certification examinations and/or to obtain a license and/or a registration. Regional accreditation by The Higher Learning Commission does not constitute specialty accreditation for individual programs.

<sup>1</sup> Link opens new window.

### Academic Programs at Wichita State University Are Accredited by or Hold Membership in the Following Associations

- ABET (<http://www.abet.org/>)<sup>1</sup>
- Accreditation Review Commission on Education for the Physician Assistant
- American Association of State Colleges and Universities
- American Chemical Society

- American Dental Educators' Association
- American Psychological Association
- Association of Public and Land-Grant Universities
- Association to Advance Collegiate Schools of Business — Business and Accounting
- Commission on Accreditation in Physical Therapy Education
- Commission on Accreditation of Athletic Training Education
- Commission on Collegiate Nursing Education
- Commission on Dental Accreditation of the American Dental Association
- Commission on Sport Management Accreditation
- Council for the Accreditation of Educator Preparation
- Council on Academic Accreditation in Audiology and Speech-Language Pathology: American Speech-Language Hearing Association
- Council on Social Work Education
- Human Factors and Ergonomics Society
- Kansas State Board of Nursing
- Kansas State Department of Education
- National Accrediting Agency for Clinical Laboratory Sciences
- National Association of Schools of Art and Design
- National Association of School Psychologists
- National Association of Schools of Dance
- National Association of Schools of Music
- National Association of Schools of Public Affairs and Administration
- The Higher Learning Commission (<http://ncahlc.org/>)<sup>1, 2</sup>

<sup>1</sup> Link opens new window.

<sup>2</sup> The Higher Learning Commission  
230 South LaSalle Street, Suite 7-500  
Chicago, Illinois 60604;  
1-800-621-7440

## Academic Calendar

The Wichita State University academic year is broken up into 16-week fall and spring semesters and an eight-week summer session. For a full list of dates, including registration deadlines and breaks, visit the academic calendar website (<https://www.wichita.edu/academic-calendar/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

## Academic Resources

Academic Resources is the place to find information about WSU's TV and radio stations or setting up a WSU email account. Information Technology Services provides open computer labs seven days a week. Graduate students provide guidance at the language and math labs as well as the writing center. Details are in this section.

- Language and Math Labs; Writing Center (p. 51)
- Media Resources (p. 51)
- Information Technology Services (p. 52)
- Student Early Alert System (SEAS) (p. 52)
- Testing Services (p. 52)

## Language and Math Labs; Writing Center

### Language Lab

The Savaiano-Cress Language Laboratories offer a variety of media services to foreign language students. Audio, video and computer equipment are available to students and faculty alike, with the goal of enhancing and expanding the learning experience through the use of instructional media. Hours are flexible to accommodate all students' needs.

### Math Lab

The Math Lab, 371 Jabara Hall, offers free, drop-in mathematics tutoring for WSU students enrolled in the following courses:

Course	Title	Hours
MATH 007	Arithmetic	
MATH 011	Beginning Algebra	
MATH 012	Intermediate Algebra	
MATH 111	College Algebra	
MATH 112	Precalculus Mathematics	
MATH 123	College Trigonometry	
MATH 144	Business Calculus	
MATH 242	Calculus I	
MATH 243	Calculus II	
STAT 370	Elementary Statistics	

Students may work independently knowing that help is available when needed. The Math Lab is staffed by graduate and undergraduate students who are studying mathematics and/or mathematics-related disciplines. No appointment is necessary; students are encouraged to visit the lab during its hours of operation. To determine the hours for the current semester, refer to the schedule posted outside the lab or check the math department's website (<https://wichita.edu/mathlab/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

### Writing Center

The WSU Writing Center, 601 Lindquist Hall, is free and open to all WSU students. In the Writing Center, all students can meet with a tutor who is either an undergraduate or graduate teaching assistant. While tutors do not proofread or edit, they offer assistance with all aspects of writing, including brainstorming, organization, style and revision, as well as specific writing concerns voiced by the student. A tutoring session lasts about 30 minutes. No appointment is necessary, but appointments may be scheduled by contacting the center at 316-978-3173.

In addition to tutoring, the center is equipped with five computers with internet access, Windows and Microsoft Word (printing services are not available). Students may also do online writing exercises to help

improve basic grammar skills. Reading comprehension exercises are also available in the center.

The Writing Center is open 11 a.m.–7 p.m. Monday through Thursday and 11 a.m.–4 p.m. on Friday. It opens the second week of classes and closes at the end of the last day of classes each semester. It is not open on study day, during finals or on holidays.

Additionally, the Online Writing Center (OWL) is available for tutoring assistance. Their access link is available through the Writing Center's website. Students should allow their submissions **two business days** for completion. The OWL's semester availability and closure is the same as the onsite Writing Center's.

## Media Resources

### Media Resources Center

The Media Resources Center (MRC) serves the instructional, research and service missions of the university for media, video and design. The MRC operates the university's streaming television station, WSUTV (<https://wichitastate.tv/>)<sup>1</sup>, provides cable TV service to campus, and programs two other channels on the campus network: Channel 95, MTV; and Channel 97: WSUTV Digital Signage.

The MRC provides high quality video production services with a team of videographers, editors and designers, and with an on-site professional television production studio.

The MRC designs, installs, supports and maintains audio-visual equipment in classrooms and meeting spaces across campus, and provides training and access keys to instructional staff.

The MRC provides instructional design, educational technology and accessibility support for all university classes and instructional staff, especially online and hybrid classes taking advantage of the university's licensed learning management system, Blackboard.

The MRC also provides web development and training services for the campus community, with a focus on providing training, development and support to campus departments and offices building web content in the university's content management system.

Facilities and resources at the MRC include a flexible learning space classroom, a multimedia lab, and recording/web conferencing spaces. A wide array of media equipment is available for use by students and faculty. This includes video recording systems and projection equipment.

### WSUTV

Wichita State University operates WSUTV, which is available streaming online (<https://wichitastate.tv/>)<sup>1</sup>. Programming includes a variety of content produced by the MRC Video services team, live coverage of convocation and commencement, and some athletics events.

<sup>1</sup> Link opens new window.

### KMUW

KMUW 89.1 is a listener-supported public radio station named Radio Station of the Year by the Kansas Association of Broadcasters, which includes commercial and noncommercial stations. KMUW is licensed to Wichita State University and operates at 100,000 watts with a schedule of local, national and international news, and a unique blend of music and entertainment. In addition to its traditional broadcast service, KMUW maintains a full-service website with local news, online streaming of its signal and archive access to its local music programs. KMUW supports local arts and culture in the community

through partnerships, promotion and sponsorships. KMWU also produces seven music programs: Crossroads, Global Village, New Settlers, Straight No Chaser, Strange Currency, Night Train and Soulsations. KMWU is affiliated with NPR, PRI, AP and PRX national networks.

## Information Technology Services

The Information Technology Services (ITS) organization provides the network and computational backbones for campus communications and computing. In addition to this hardware infrastructure, ITS supports the software systems for the administration of the university. Responsibilities include IT security ([https://www.wichita.edu/services/information\\_security/](https://www.wichita.edu/services/information_security/))<sup>1</sup> and compliance (FERPA, PCI, HIPPA, etc.), administrative application support (Banner ERP, etc.) and training, interface programming, desktop diagnosis and repair, network administration and connectivity support (wired, Wi-Fi, 4G), voice telephony support, electronic door lock and security camera support, and general technology consulting relative to both academic and administrative software/systems. More details about these and other services are on the ITS website (<http://wichita.edu/its/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

### Technology Help Desk

Technology Help Desk is housed in 120 Jabara Hall. Technology Help Desk provides technical support to all students, faculty and staff of Wichita State University. More details about the help desk and its services are available online at the help desk website (<http://wichita.edu/helpdesk/>)<sup>1</sup>. The phone number for the help desk is 316-978-HELP (4357).

Help Desk Hours	
Monday – Thursday	8 a.m. – 7 p.m.
Friday	8 a.m. – 5 p.m.
Saturday	10 a.m. – 4 p.m.
Sunday	Closed

<sup>1</sup> Link opens new window.

### Campus Network Access

All residence hall students are provided a direct, high-speed connection to the campus network and the internet. Wireless access to the campus network (and internet) is also available from all campus buildings.

### Email (@shockers.wichita.edu)

Every WSU student is automatically assigned an email account with the “@shockers.wichita.edu” suffix. This email account provides students with a convenient way to communicate with other students, faculty and university offices in their academic pursuits. Students are expected to use this email address for official communication with faculty and university offices. Applications, instructions and other information about email accounts are available at the online WSU email center (<http://wichita.edu/email/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

### myWSU

The myWSU portal is a website that allows students to view and update their own WSU information. Examples are: add/drop courses, check academic status, check on status of financial assistance and get academic history (grades). For more information about this service, go to the myWSU website (<https://mywsu.wichita.edu/>)<sup>1</sup> and click on the *New to myWSU* link.

<sup>1</sup> Link opens new window.

## Student Early Alert System (SEAS)

WSU cares about student success. For this reason, WSU has implemented an academic early alert system. Under this system, called SEAS, instructors provide feedback to students who appear to be struggling and offer any assistance that may be needed to help get them back on track academically. Students who are contacted by their instructors through SEAS are encouraged to take full advantage of the help offered.

## Testing Services

Testing Services is an all-in-one testing resource on campus. The exams provided by Testing Services include make-up exams, accommodations exams for students registered with Disability Services, placement exams for English and math, as well as certification tests for community professionals, and more.

Contact Testing Services in 320 Grace Wilkie Hall, at 316-978-TEST (8378), or on the Testing Services website (<http://www.wichita.edu/testing/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

## University Libraries

University Libraries includes the main Ablah Library, the McKinley Chemistry Library and the Thurlow Lieurance Memorial Music Library, located in the Music and Languages Innovation Center (MALIC). These libraries connect students and faculty to the information, technology and other resources essential to learning and research at WSU.

The University Libraries offers a wealth of electronic, print and non-print resources that can be located through the Libraries’ website. Onsite library collections include more than two million books and research journals, federal and state documents, music recordings and scores, DVDs, microforms and other materials. The digital collections provide access to a variety of information resources with 365 databases offering full-text access to over 500,000 e-books and over 86,000 e-journal titles, company information, statistics, historical documents, as well as streaming audio and video. Ablah Library has been a Federal Documents Depository Library for over 100 years and is an official United States Patent and Trademark Resource Center, the only such depository in Kansas. In addition to its own collections, University Libraries is able to borrow materials from a worldwide network of other libraries.

University Libraries is dedicated to offering students a variety of services, study environments and convenient hours. Facilities include both quiet and collaborative study spaces with SmartTVs, whiteboards, print stations, scanners, color printers, photocopiers, seating for more than 850 people, individual focus rooms, group study rooms and a 24-hour study room. Over 200 computers provide access to library resources, the internet and a variety of software. Laptops, tablets, digital cameras and other technologies are available for checkout. C-Space provides individuals or student groups the opportunity to collaborate, create and receive assistance in using technologies such as virtual reality, 3D printing, app development, the one-button studio and media production facilities. Librarians offer instruction through in-class or online collaboration with university departments, workshops, online tutorials and research guides. Reference and technical help desk personnel are available to assist library users with their research and technical needs, including discussing assignments, specific databases and answering other research inquiries. Reference assistance

is available by phone, email, Zoom, instant message, text message and in person. Appointments may be scheduled in advance.

University Libraries Special Collections and University Archives includes rare books, historical Kansas maps, photographs, records of the history of the university and a growing manuscript collection of more than 700,000 documents. Featured collections include papers of the abolitionist William Lloyd Garrison, the Gordon Parks Papers, the Baughman Collection of Early Kansas Maps, the Aitchison Rare Books Collection, and congressional papers including those of Kansas Congressman Dan Glickman. Over 150 digital collections presented by Special Collections and University Archives feature rare books, historical papers and photographs, as well as university and local history, including the Wichita Photo Archives.

More information about resources and services is located on the University Libraries website (<http://libraries.wichita.edu>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

## Wichita State Online

Wichita State Online brings WSU's campus to students everywhere, making it possible to earn a degree from Wichita State University completely online.

Offering online Associate, Bachelor's, Master's and Doctoral level degree programs, Wichita State Online provides a path to help students achieve their goals

### Getting Started as an Online Student

New online students apply for admission and select their online-only program option in the Academic Interest section of the application (<http://wichita.edu/apply/>)<sup>1</sup>. Returning undergraduate students can reactivate their student record online (<http://wichita.edu/reactivation/>)<sup>1</sup>. Students with questions before they apply or reactivate can call 844-978-6656 or email [online@wichita.edu](mailto:online@wichita.edu) for assistance.

### Online Student Academic Advising

Fully online program students work with a dedicated online academic advisor who provides support and guidance from application to graduation. It is recommended that all online program students work closely with their advisor before enrolling in courses to ensure the most effective plan of study.

### Online Student Support

Online program students have access to a robust student support system, including a dedicated student success specialist who provides focused support, academic resources and access to services like tutoring, counseling and more. Learn more at the Online Student Support webpage (<http://wichita.edu/onlinestudents/>)<sup>1</sup>.

### Online Program Tuition and Fees

Fully online program students pay in-state tuition (regardless of where they live), an online course fee, plus any applicable college fees. Students in fully online programs do not pay the on-campus student fee and are not issued a ShockerID card. Online program students do not receive benefits such as access to the Heskett Center, campus services, campus events and Shocker athletics.

### Fully Online Degree Programs

#### Undergraduate Online Programs

- Associates Degree (AA)
- Criminal Justice (BS)
- Dental Hygiene (RDH to BSDH)

- Early Childhood Unified/Elementary Education Apprentice (BAED)
- Engineering Technology — Management (BSET) (*Hybrid*)<sup>2</sup>
- Field Major - multiple concentrations available (BA)
- General Business (BBA)
- General Studies - multiple concentrations available (BGS)
- Homeland Security (BS)
- Human Resource Management (BBA)
- International Business (BBA)
- Management (BBA)
- Nursing (RN to BSN)
- Workforce Leadership and Applied Learning (BAS)

#### Graduate Online Programs

- Aging Studies (MA)
- Arts Leadership and Management (MA)
- Business Administration (MBA)
- Criminal Justice (MA)
- Early Childhood Unified - Residency Track (MAT)
- Health Administration (MHA)
- Learning and Instructional Design (MED)
- Human Resource Management (MHRM)
- Nursing Education (MSN)
- Nursing - Individual/Family Focus (MSN to DNP)
- Public Administration (MPA)
- Special Education — Early Childhood Unified (MED)
- Special Education — High Incidence (MED)
- Special Education — High Incidence, Alternative Certification (MED)
- Special Education — Low Incidence (MED)

#### Online Certificate Programs

- Aging Studies, Graduate Certificate
- City and County Management, Graduate Certificate
- Economic Development, Graduate Certificate
- English Literature and Composition Pedagogy, Graduate Certificate
- Health Administration, Graduate Certificate
- Health Science, Undergraduate Certificate
- Human Resource Management Decision Making, Graduate Certificate
- Human Resource Management Skills, Graduate Certificate
- Leadership, Undergraduate Certificate
- Mentoring and Coaching, Graduate Certificate
- Nonprofit Management, Graduate Certificate
- Online Learning and Educational Technology, Graduate Certificate
- Public Finance, Graduate Certificate
- Public Health, Graduate Certificate
- Public Health Science, Undergraduate Certificate
- Space Science, Graduate Certificate
- Superintendent/District Leadership, Graduate Certificate
- Tilford Diversity Studies, Undergraduate Certificate

#### Learn More About Wichita State Online

- Student support and information (<http://wichita.edu/online/>)<sup>1</sup>
- Search for online courses (<http://wichita.edu/onlinecourses/>)<sup>1</sup>
- Request information by email: [online@wichita.edu](mailto:online@wichita.edu)

<sup>1</sup> Link opens new window.

<sup>2</sup> Hybrid online programs are not 100 percent online and require some on-campus coursework.

## University Facilities

Wichita State's main campus is located on a 330-acre site bounded by Hillside, Oliver, 17th and 21st streets in northeast Wichita. The campus is modern and accessible and at the same time retains the flavor of the university's heritage, combining distinctive Georgian-style architecture with more modern buildings of stone and brick that are accentuated by attractive landscaping. Wichita State continues to grow. During the past 25 years, WSU has more than doubled its instructional space, adding major buildings for art, engineering, health sciences, sciences, physical education, music, dance, and liberal arts and sciences. In the past four years, Wichita State's main campus in northeast Wichita has been expanded by 120 acres with the conversion of a golf course to a new Innovation Campus that houses an interconnected community of academic and partnership buildings, laboratories and mixed-use areas.

### Eugene M. Hughes Metropolitan Complex

The Eugene M. Hughes Metropolitan Complex, located at 29th Street North and Oliver, is considered part of the main campus. Named for WSU's 11th president, Eugene Hughes, the 27-acre site has many amenities, including an initial building containing the 1,750-seat Roger Lowe Auditorium, the 145-seat Frederick Sudermann Commons, and the Richard Welsbacher Experimental Theater, a black-box theater. This facility offers meeting rooms that are available for rent and can accommodate groups from 10 people to 250 people. In addition, it houses the Office for Workforce, Professional and Community Education which offers community education classes for the public, the Small Business Development Center, the Educational Opportunity Center, and the Evelyn Hendren Cassat Speech-Language-Hearing Clinic offering special services in these respective fields. The complex also has playing fields for intramural sports and the Advanced Education in General Dentistry building, providing advanced education to dental school graduates as well as needed oral health care to the general public.

### Fine Arts Facilities

**Wiedemann Hall** houses the first pipe organ built in North America by the world-renowned firm of Marcussen and Son, Denmark. The 400-seat music venue, dedicated in 1986, is the ideal acoustical setting for the organ. The building is named for music-lover and philanthropist Gladys H.G. Wiedemann.

**Duerksen Fine Arts Center**, opened in 1956, hosts university, community and professional music and dance performances. Named for alumnus and long-time dean of the college, Walter Duerksen, the fine arts center houses the School of Music, including the 500-seat Miller Concert Hall, classrooms and practice studios.

**Wilner Auditorium**, built in 1938 with federal funds provided through the Public Works Administration, is named to honor speech and theater professor George Wilner. Although other stages are now available, the 550-seat Wilner Auditorium still serves as the main stage for theater activities.

### Grace Memorial Chapel

Harvey D. Grace Memorial Chapel, located in the heart of the campus near Morrison Hall and the Rhatigan Student Center, was built in 1963 and dedicated to serve all creeds and races. The chapel is available to students for group or individual worship and meditation, and is a frequent location for weddings.

## National Institute for Aviation Research

The National Institute for Aviation Research (NIAR) at Wichita State University is the largest university-based aviation research and development institution in the United States with nearly one million square feet of laboratory space. Established in 1985, NIAR offers research, development, testing, certification and training services in the areas of Additive Manufacturing, Advanced Coatings, Aerodynamics, Aging Aircraft, Ballistic and Impact Dynamics, CAD/CAM, Composites/Advanced Materials, Crash Dynamics, Environmental and Electromagnetic Test, Full-Scale Structural Test, Mechanical Test, Nondestructive Test, Research Manufacturing, Reverse Engineering, Robotics and Automation, Virtual Engineering and eXtended Reality.

NIAR is home to the National Center for Advanced Materials Performance and the FAA's Center of Excellence for Composites and Advanced Materials. It is also a member of the FAA's ASSURE Center of Excellence for UAS Research and NASA's Advanced Composites Consortium.

NIAR headquarters is located on WSU's main campus. Additional NIAR locations include the 3DEXPERIENCE Center inside John Bardon Center; the Jerry Moran Center for Advanced Virtual Engineering and Testing; laboratories within the National Center for Aviation Training; Environmental/Electromagnetic Test and Engineering Design/Modification Labs near Spirit AeroSystems; and the Aircraft Structural Test and Evaluation Center in Park City.

Find out more at the NIAR website (<http://niar.wichita.edu>)<sup>1</sup>, or by calling 316-978-6427, or 800-NIAR-WSU.

<sup>1</sup> Link opens new window.

## Plaza of Heroines

Surrounded by Ablah Library, Jabara Hall, Grace Memorial Chapel and Clinton Hall, the Plaza of Heroines is a beautiful and welcome gathering place. Danseuse Espagnole (Spanish Dancer), by artist Sophia Vari, is a striking addition to WSU's highly regarded outdoor sculpture collection and the centerpiece of the plaza. Landscaping and benches surround the sculpture enhancing the circular plaza, constructed of bricks and granite pavers engraved with the names of honored women. Proceeds from the plaza project benefit the Center for Women's Studies scholarship fund.

## Ulrich Museum of Art

Most recognized for the iconic Joan Miró mosaic mural *Personnages Oiseaux*, the Ulrich Museum of Art is located in the southwest section of campus. The Museum and the Martin H. Bush Outdoor Sculpture Collection are unique and essential parts of campus life at WSU. The Museum features changing exhibitions, installations, performances and programs that examine the art and issues of modern and contemporary culture.

Students are invited to use the museum as a research space, a place to discover the world through a broad range of disciplines, a free to be space, and a haven for just hanging out and meeting new people. The museum is also a resource for internships and part-time employment.

Make your next visit to the Ulrich or day on campus more rewarding by downloading the free Ulrich Museum App available on the App Store or Google Play, with multi-media self-guided tours and interactive maps for easy navigation of Wichita State University's campus. The Ulrich app highlights the extraordinary Martin H. Bush Outdoor Sculpture Collection, which was named one of the top 10 outdoor

sculpture collections on a college/university campus in the United States (2006 *Public Art Review*).

Hours: 11 a.m. to 5 p.m. Tuesday through Friday and 1 p.m. to 5 p.m. Saturday and Sunday. Closed Mondays and major/university holidays.

- Admission: free
- Phone: 316-978-3664
- Email: [ulrich@wichita.edu](mailto:ulrich@wichita.edu)
- Ulrich Museum of Art Website (<http://ulrich.wichita.edu>)<sup>1</sup>
- Ulrich Museum of Art on Facebook (<http://facebook.com/ulrichmuseum/>)<sup>1</sup>
- Ulrich Museum of Art on Twitter (<http://twitter.com/ulrichmuseum/>)<sup>1</sup>

<sup>1</sup> Link opens new window.

### **WSU Haysville**

WSU Haysville, established on July 1, 2018 and located at 106 Stewart Avenue, Haysville, KS 67060, is a WSU off-campus facility offering a variety of courses, including general education, sign language and noncredit community education classes, as well as technical courses in partnership with WSU Tech.

WSU Haysville has a diversity of students: high school guest students, regular and transfer WSU students, nontraditional students including working adults, and senior citizens who can audit many classes tuition-free. WSU Haysville provides flexible higher learning options, with classes offered in the afternoon and evening. Many 3 credit hour classes are offered in a once-a-week, three-hour format; some classes are also offered in the hybrid format, where students meet in person only a few times a semester, but the majority of classwork is done online. Students can complete their sign language minor at WSU Haysville. More WSU classes and programs are being developed to help students south of Wichita to attend WSU classes at this location closer to home.

Starting fall 2019, WSU Haysville began to host HVAC classes from WSU Tech for the Haysville high school students. More WSU Tech classes including CNA will be offered at WSU Haysville in future semesters.

Since its inception, WSU Haysville has established a WSU Little Free Library Network in Haysville with its flagship library right at the WSU Haysville location. We have offered noncredit community classes, an Art Show, job application workshops and job fairs. WSU Haysville staff are also involved in various Haysville community and city committees and events.

WSU Haysville offers a premium, comfortable and safe higher learning environment for its students. Well-trained and friendly staff help students with printing and copying, registration and enrollment, fee payments, proctored testing, math and English placement testing, as well as assist students in making career and academic counseling appointments. Also offered are WSU Library and Shocker Store materials and merchandise pickups and library returns. WSU Haysville provides lactation room access and storage for nursing mothers. We provide general information on classes and programs at WSU Haysville and other locations. Parking is free, with no parking permit required. For the latest updates on WSU Haysville, please call 316-978-8001 or visit WSU Haysville online (<http://wichita.edu/haysville/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

### **WSU Old Town**

WSU Old Town, a complex of facilities and services, is located in downtown Wichita's Old Town district. The complex comprises office space in three buildings located at 121 N. Mead, and buildings at 213 N. Mead and 238 N. Mead.

Several WSU units focused on health care and outreach to Wichita businesses and the larger community are housed at the satellite location including:

- Community Engagement Institute;
- Kansas Procurement Technical Assistance Center (PTAC);
- KMUW Wichita Public Radio;
- Physician Assistant and Physical Therapy graduate degree programs;
- Training and Technology Team (T3); and
- WSU Tech — health professions.

The Old Town location is a natural fit with the university's mission to be an essential economic driver for Wichita and the state of Kansas.

The university generates substantial activity in all three buildings, with numerous educational sessions and public events — especially in the large activity space at the 238 N. Mead property.

WSU Old Town's close proximity to the university's main campus is convenient for WSU employees, while its central location with access to many area amenities benefits those who visit and take courses at this location.

### **WSU South**

Previously in Derby, WSU South is now located at 3821 E. Harry Street, Wichita, KS 67218; our WSU Administrative Office is at Suite B105. With its unique learning environment, classroom technologies, helpful instructors and friendly professional staff, WSU South offers general education and professional bachelor's degree completion courses, including elementary education, psychology and others. Many of these classes are offered in the late afternoon and evening in a once-a-week, three-hour class format for the students' convenience. Increasingly, many classes are being offered in the hybrid format (online and in-class) favored by many students. WSU South has a diversity of students taking classes to earn college credits or finish their enrolled programs: high school guest students, regular and transfer students, returning adults, and Shocker Pathway students. Senior citizens (60 years old and above) can audit many WSU classes tuition free in most cases.

At its new location on Harry Street in Wichita, WSU South is co-located with the WSU Shocker Studios, WSU Tech (Wichita State University Campus of Applied Sciences and Technology) and the Shocker Store. The WSU Shocker Studios (<http://www.wichita.edu/mediaarts/>)<sup>1</sup> is a state-of-the-art professional production facility and consists of over 35,000 square feet of facilities and equipment. It is heavily engaged with industry professionals in the fields of audio production, animation, filmmaking and game design. WSU Tech (<https://wsutech.edu/>)<sup>1</sup> provides over 100 degree and certificate options designed to meet the workforce needs of Kansas. At WSU South, students find several of WSU Tech's technical programs including interior design, police science, business administration, massage therapy, veterinary technician and emergency medical technician (EMT). Students also find transferable general education courses and the Shocker Pathway program. The Shocker Pathway (<https://wsutech.edu/shockerpathway/>)<sup>1</sup> is a partnership between WSU Tech

and WSU that provides an affordable, convenient and respected way to earn a two-year Associate of Arts (AA) degree from WSU.

As a continuation of previous operations in Derby, WSU South schedules general education classes not offered by WSU Tech. In addition, WSU South continues to offer classes for completion of majors in psychology, elementary education and others. Emphasis is also placed on offering classes/programs relevant to the Shocker Pathway, in which WSU Tech students after completing 50 credit hours in their relevant fields of study at WSU Tech, can get a WSU AA degree or transition to WSU to finish a bachelor's degree. We also have general education classes which WSU Shocker Studios students can take.

At the new WSU South center on Harry Street, with its spacious hallways adorned with artistic murals and classrooms with the latest classroom technologies, WSU South continues its tradition of offering a premium and comfortable learning environment and outstanding customer services. Well-trained, friendly and helpful staff continue to help students with printing and copying, payments, registration and enrollment, proctored testing, math and English placement testing, arrangement of career and academic counseling, scan-and-email services, WSU Library materials pickups and returns, and lactation room access and storage for nursing mothers. WSU students have access to workstations in our main office and a semi-private area across from our main office. WSU South provides general information on WSU classes, programs and the Shocker Pathway. Parking permits are not required for parking at WSU South. There is also a bus shuttle operating between the main campus and WSU South. For the latest updates on WSU South, please call: 316-978-8000 or visit the WSU South Website (<http://wichita.edu/south/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

### WSU West

WSU offers general education and upper-level courses in select disciplines each semester at WSU West, located at 3801 N. Walker Avenue, which is near the intersection of 37th Street North and Maize Road. Textbook ordering and delivery are also available through the Shocker Store. Textbooks are delivered to WSU West main office (WM 101) and are available for pickup from WSU West staff.

WSU West has access to the "WSU Secure" Wi-Fi network for use by WSU faculty, staff and students. Members of the general public also may access the open "WSU Guest" Wi-Fi network. In addition, a quiet, computer-equipped study room and a group study room are available. All WSU students, WSU Tech students (some restrictions), faculty and staff are welcome to use resources at WSU West, even if they are not enrolled in coursework at WSU West. Parking permits are not required to park in the WSU West parking lot.

For further questions call: 316-978-6777, or visit the WSU West website (<https://wichita.edu/west/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

## Centers and Institutes

Wichita State maintains a focus on research in all of its colleges. Much of that work, as well other academic pursuits, takes place in our many centers and institutes. Here is a comprehensive listing<sup>1</sup> of these vital entities.

- Applied Psychology Research Institute (<http://wichita.edu/Applied-Psych-Research-Institute/>)

- Center for Applied Research and Evaluation (<https://communityengagementinstitute.org/center-and-initiatives/center-for-applied-research-and-evaluation/>)
- Center for Behavioral Health Initiatives (<https://communityengagementinstitute.org/center-and-initiatives/center-for-behavioral-health-initiatives/>)
- Center for Economic Development and Business Research (<https://www.cedbr.org/>)
- Center for Economic Education (<http://kansas.councilforeconed.org/>)
- Center for Energy Studies (<http://wichita.edu/Center-Energy-Studies/>)
- Center for Entrepreneurship (<http://wichita.edu/Center-Entrepreneurship/>)
- Center for International Business Advancement (<https://www.wichita.edu/ciba/>)
- Center for Leadership Development (<https://communityengagementinstitute.org/center-and-initiatives/center-for-leadership-development/>)
- Center for Management Development (<https://cmd.wichita.edu/>)
- Center for Physical Activity and Aging ([https://www.wichita.edu/academics/applied\\_studies/HPS/cpaa/](https://www.wichita.edu/academics/applied_studies/HPS/cpaa/))
- Center for Real Estate (<https://realestate.wichita.edu/>)
- Center for Organizational Development and Collaboration (<https://communityengagementinstitute.org/center-and-initiatives/center-for-organizational-development-and-collaboration/>)
- Center for Public Health Initiatives (<https://communityengagementinstitute.org/center-and-initiatives/center-for-public-health-initiatives/>)
- Center for Public Policy and Management (<https://www.wichita.edu/services/ppmc/>)
- College of Fine Arts Institute ([https://www.wichita.edu/academics/fine\\_arts/cfai/](https://www.wichita.edu/academics/fine_arts/cfai/))
- Community Engagement Institute (<https://communityengagementinstitute.org/>)
- Ennovar, Institute of Emerging Technologies and Market Solutions (<https://www.wichita.edu/research/ennovar/>)
- Environmental Finance Center (<https://www.wichita.edu/efc/>)
- FirePoint Innovations Center (<https://firepoint.info/>)
- The IMPACT Center (<https://communityengagementinstitute.org/center-and-initiatives/impact-center/>)
- Kansas Small Business Development Center (<https://www.wichita.edu/research/ksbdc/>)
- Midwest Criminal Justice Institute (<https://www.wichita.edu/mcji/>)
- National Center for Advanced Materials Performance (<https://www.wichita.edu/NIAR/ncamp/>)
- National Institute for Aviation Research (<https://www.wichita.edu/research/NIAR/>)
- Regional Institute on Aging (<https://www.wichita.edu/ria/>)
- World Trade Council of Wichita (<https://www.wichita.edu/academics/business/wtc/>)

<sup>1</sup> All links in list open new window.

## University and Student Support Areas

### Alumni Association

Courtney M. Marshall, *president and CEO*

The WSU Alumni Association is the world's largest network of Shockers who share the mission of supporting Wichita State University. Founded in 1913, the alumni association is the network through which the university community and its alumni communicate with and serve one another. The primary intent of the partnership between the association and the university is to ensure the continued excellence of Wichita State. But this serious mission certainly doesn't mean the association isn't serious about having fun, too. Scores of exciting Shocker opportunities to participate in fun programs and events prove this point every semester.

Many traditional university events — including commencement and homecoming — are supported by association staff, donors or volunteers. The association also sponsors Students Today Alumni Tomorrow (STAT), a dynamic student group. STAT provides students unequalled opportunities to network with fellow students and WSU alumni of all ages. Another WSU initiative that directly benefits students and relies on alumni participation for its success is the *Drive Your Pride* license plate program. This program offers alumni and students the chance to sport WuShock on their official Kansas tags, and at the same time, contribute to student scholarships. The tag program pours thousands of dollars each year into scholarships for deserving students.

For more information about the groups, events, projects and programs of the WSU Alumni Association, visit the association online (<http://ShockerAlumni.org>)<sup>1</sup>, call 316-978-3290, or drop by the Woodman Alumni Center, 4205 E. 21st Street, just east of Eck Stadium/Tyler Field.

<sup>1</sup> Link opens new window.

### **Shocker Career Accelerator**

Nail the resume, land the interview and prepare for the job with the Shocker Career Accelerator. Build marketable skills and gain professional work experience before and after graduation through targeted internships, applied learning opportunities, one-on-one counseling, professional development workshops, career fairs and more. Now is the time to develop the right habits and skills for a lifetime of professional success.

Need help choosing a major? No problem! The Shocker Career Accelerator understands that deciding on a major isn't always easy — and sometimes it's downright hard. That's why the center provides every student with the perfect environment to explore their interests, discover their options and create a blueprint for success.

WSU students also have access to one of the best cooperative education and internship programs. WSU students can earn work experience, college credit and a paycheck — all while bolstering their resumes and getting a leg up on the competition. Get started today by calling 316-978-3688, visit the Shocker Career Accelerator online (<http://wichita.edu/careerdevelopment/>)<sup>1</sup> or visit in person in Brennan III or John Bardo Center, Suite 162.

<sup>1</sup> Link opens new window.

### **WSU Foundation**

**Elizabeth H. King, President and CEO**

WSU Foundation is the private fund-raising organization of the university. The mission of the WSU Foundation is to enhance a community of learning excellence for students and faculty through philanthropy and stewardship. Private contributions of cash, stock, real estate, in-kind and planned gifts help support the programs

and vision of the university beyond current funding from fees, tuition and government monies.

In today's world, as higher education is pressed to do more with less, the WSU Foundation works with hundreds of donors — alumni, businesses, foundations — who also want Wichita State to be the best it can be. Because of generous donors, thousands of WSU students receive scholarships to make their education more affordable. Faculty receive additional resources to take their work to the next level. New programs are launched to reflect the ever-changing educational landscape. And new facilities are built (or existing ones renovated) to help deliver on Wichita State's commitment to innovation and excellence. Through the unwavering loyalty of donors, the spirit and traditions of Wichita State live on.

**Want to get involved?** Learn more by calling the WSU Foundation at 316-978-GIVE (4483) or visit the WSU Foundation website (<https://foundation.wichita.edu/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

## **Student Involvement, Services**

### **Disability Services**

The Office of Disability Services provides academic accommodations for students who experience physical, learning or mental disabilities. Students are required to provide appropriate documentation to the director of Disability Services before classroom services are provided. For more information, contact:

Office of Disability Services  
Wichita State University  
1845 Fairmount  
Wichita, Kansas 67260-0132  
316-978-3309 front office  
316-978-6128 for rides  
316-854-3032 video phone  
316-978-3114 fax

Disability Services Webpage (<https://wichita.edu/disability-services/>)<sup>1</sup>

Services are based on the student's need for academic accommodation. Disability Services encourages students to be independent on campus and to use those services which help maximize their educational experience.

<sup>1</sup> Link opens new window.

### **Diversity and Inclusion**

The Office of Diversity and Inclusion aims to cultivate and sustain an inclusive campus that strives for academic excellence by creating an environment that educates, empowers and mobilizes all members of the Shocker community. The office provides dynamic programs, which range from speakers and film showings to award ceremonies, cultural festivities and LGBTQ programming — each representing a small piece of the diversity displayed on the WSU campus. The Office of Diversity and Inclusion collaborates with many campus departments and student organizations for various diversity and multicultural student success initiatives. In conjunction with campus partners, the office celebrates Hispanic Heritage, LGBTQ, Native American, Black History, Women's History and Asian/Pacific American Heritage months.

The office also sponsors the Promoting Academic Student Success (PASS) which facilitates the retention, academic success, holistic development and timely graduation of all minority students at WSU, through academic support services, educational and cultural programming, interpersonal relationships and mentoring. PASS

matches successful continuing WSU students with freshmen and transfer students to help ease the transition from high school or community college to WSU. The program helps new students quickly identify all the support services available and provides direct tutorial assistance to any program participants who have committed to achieving their personal best.

The Office of Diversity and Inclusion is located in the Rhatigan Student Center, suite 208. Much more detailed information describing the Ambassadors for Diversity and Inclusion, Men of Excellence and Phenomenal Women support groups and additional resources the office provides can be found at the office website (<https://wichita.edu/odi/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

### **International Student Services**

The Office of International Education serves the special needs of approximately 1,500 international students from more than 100 countries enrolled at Wichita State University. (See the international student admission section for requirements.) An orientation program specially designed for new international students prepares them for entrance into the U.S. academic system and way of life.

The office also sponsors the Cultural Ambassador Program and other activities that promote interaction between U.S. and international students.

In addition, the office houses a study abroad reference center which provides information to U.S. students on study, work and travel opportunities abroad.

For more information, contact the Garvey International Center, 316-978-3232.

### **Military and Veteran Services**

Wichita State is proud to be committed to helping veterans, active service members, dependents and spouses receiving military benefits make the successful transition into WSU's academic community. Whether it's needing assistance with educational benefits, access to resources that ease the transition into the university, or wanting to connect with fellow vets, WSU has access to resources that will help smooth the transition. An overview of resources can be found at the military student services website (<http://wichita.edu/military/>)<sup>1</sup>.

In the capacity of serving active duty military and veterans, the Director of Adult Learning serves as the point of contact (POC) for inquiries pursuant to the Department of Defense Memorandum of Understanding. For questions concerning POC needs, visit the Adult Learning website (<http://wichita.edu/adultlearning/>)<sup>1</sup>.

### **Captain Riley Leroy Pitts Military and Veteran Student Center**

The Captain Riley Leroy Pitts Military and Veteran Student Center, in Room 105 Grace Wilkie Hall, exists to build and maintain a community of students with military experience and to provide comprehensive support for the unique needs of veterans, military members and military dependents in an environment of respect. All students with military experience — past or present — and military dependents are welcome to visit the Military and Veteran Student Center to ask questions, find resources, make connections, study, use the free computer stations, get a free cup of coffee or to just unwind between classes. Call 316-978-3856 or visit the Military and Veteran Student Center website (<http://wichita.edu/veterancenter/>)<sup>1</sup> for more information. (Current or recent military members needing help with the transition to college can also contact the TRIO Veterans Upward Bound program.)

### **Veteran Benefits**

The Office of Military and Veteran Services provides assistance to military members, veterans and their dependents in using their VA education benefits. It provides information on education benefit programs through the Department of Veterans Affairs, the application process for obtaining education benefits, and the certification process for using these benefits. Additionally, military-connected students who are admitted to Wichita State as non-Kansas residents may be eligible for in-state tuition rates. For additional information on VA education benefits, please visit the WSU VA Education Benefits webpage (<http://wichita.edu/veterans/>)<sup>1</sup>, stop by 105 Grace Wilkie, call 316-978-3547 or email: [veterans.services@wichita.edu](mailto:veterans.services@wichita.edu).

### **Military Tuition Assistance**

Tuition Assistance may be offered through the various branches of the military. Students wishing to use military tuition assistance should check with their branch of service education office and chain of command to determine the appropriate procedures for using these benefits. For questions regarding student accounts and tuition assistance billing, contact the Office of Financial Operations at [wsu3rdparty@wichita.edu](mailto:wsu3rdparty@wichita.edu).

<sup>1</sup> Link opens new window.

### **Yellow Ribbon Program**

WSU participates in the Yellow Ribbon Program, an initiative of the U.S. Department of Veteran Affairs. The program helps veterans pay for out-of-state tuition that the Post-9/11 GI Bill does not cover. Servicemembers and their dependents who are eligible for 100 percent Chapter 33 Post-9/11 benefits may be eligible to participate in the Yellow Ribbon Program at WSU. However, not every student qualifies for Yellow Ribbon. Contact WSU Military and Veterans Services for more information.

### **OneStop**

OneStop offers student-focused support for most WSU student-related needs. OneStop allows students the ability to get many answers for admissions, financial aid, advising, student accounts and registration in a central place. OneStop offers self-service options 24/7/365 at the OneStop website (<http://wichita.edu/onestop/>)<sup>1</sup> and toll-free phone service at 855-978-1787. Students will need a OneStop telephone access code found by logging in to the myWSU portal (<https://mywsu.wichita.edu/>)<sup>1</sup> and selecting "Manage your Password" for current students or "New to myWSU" for incoming students. In-person service is also available in the OneStop office.

OneStop also provides first-year advising for incoming traditional freshman students. OneStop specialists (first-year advisors) work collaboratively with academic college advising offices to develop a degree plan for each student as well as educate them on the operational tools and resources that will aid their success at Wichita State.

OneStop is located in Jardine Hall, Room 112. Regular office hours are 8 a.m.–7 p.m. Mondays–Thursdays, and 8 a.m.–5 p.m. on Fridays.

<sup>1</sup> Link opens new window.

### **Student Government Association**

Wichita State believes that one of its primary tasks is preparing students for the responsibilities of citizenship in a democratic society. With this in mind, the university places an increasing emphasis on the role the Student Government Association plays on campus.

The legislative, executive and judicial responsibilities of SGA are vested in the Student Senate, the executive officers and cabinet, and the SGA Supreme Court. The senate appoints students to many

university and faculty senate committees, recognizes and funds more than 300 student organizations, and allocates approximately \$10 million annually in student fees to campus agencies including the Heskett Center, Rhatigan Student Center and Student Health Services. SGA also provides opportunities to fund education through scholarships. The scholarships include the James J. Rhatigan Leadership Scholarship, SGA International Student Scholarship, SGA Endowed Scholarship and the SGA Endowed Summer Scholarship.

Students come first. Each student is automatically a member of SGA and is eligible to vote in the annual elections in April. Throughout the year, openings exist on the Student Senate, as well as in many of the university committees. All students are encouraged to participate in student government through the many opportunities SGA offers.

For more information, contact the Student Government Association, 219 Rhatigan Student Center, Wichita State University; 316-978-3480, [sga@wichita.edu](mailto:sga@wichita.edu).

### **Student Money Management**

Students wanting to learn more about managing their finances can receive free help from peer financial coaches. Located in 115 Neff Hall, the Office for Student Money Management (OSMM pronounced *awesome*) is open during normal office hours and is available in the evenings by appointment.

OSMM, as part of the Office of Student Success, is designed to help increase retention and graduation rates by addressing one of the major stressors for WSU students and one of the major reasons for dropping out of college across the country: struggles related to money.

OSMM provides students with information and coaching on a variety of topics related to personal finances in college — including completing the FAFSA, making and sticking with a spending plan, matching a plan for paying for college with a plan for graduation, ways to establish good credit or get out of credit trouble, figuring out how much to borrow for college and how to pay it back, and finding campus and community resources.

OSMM does not offer scholarships, credit counseling or advice related to bankruptcy, investment or retirement. Contact 316-978-3254, or email the office ([osmm@wichita.edu](mailto:osmm@wichita.edu)) for more information or to make an appointment to meet with a peer financial coach.

### **TRIO Disability Support Services**

*The TRIO Disability Support Services* assists and advocates for 115 first-generation and/or limited income undergraduate students with learning, physical and psychological disabilities through academic support, resources and services. The program provides opportunities for academic development, assists students with general education college requirements, and motivates students with disabilities toward the successful completion of a baccalaureate degree.

Services provided by TRIO DSS include individualized academic tutoring, advice and assistance in postsecondary course selection and degree planning, assistance with graduate and professional program applications, and career exploration in in-demand industry sectors or occupations and referral. TRIO DSS assists students with information about financial aid programs and scholarship opportunities, provides assistance in completing financial aid applications, and offers education or counseling services designed to improve financial/economic literacy or other skills aimed at building personal financial understanding and responsibility. Students at TRIO DSS sharpen life/study skills through workshops, access to the computer technology lab and textbook loan

program, and exposure to academic programs on campus and in the community.

For information, contact TRIO DSS at 316-978-5949, stop by 158 Grace Wilkie Annex, or visit the TRIO DSS website (<http://wichita.edu/dss/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

## **Wellness Programs**

### **Campus Recreation**

Providing exciting and fun sport, fitness and informal recreation opportunities for students, faculty and staff is Campus Recreation's top priority. Encouraging individuals to develop a lasting appreciation for recreational activity. Whether interested in playing an intramural sport, grabbing a quick workout or participating in an F45® fitness class Campus Recreations has something for everyone!

### **Heskett Center**

The Heskett Center, home of Campus Recreation, is a 166,000-square-foot facility located in the middle of campus. It features everything needed to get in shape and relieve some stress, including:

- 5 convertible basketball/volleyball/badminton courts
- A 200-meter, six-lane indoor track (7 laps of lane 6 = 1 mile)
- Performance Studio; strength and conditioning program for classes and events
- E-Sports Hub, with 20 computers, X-Box and VR
- Racquetball and squash courts
- Two fitness studios featuring mirrored walls and hardwood floors
- A rowing studio with 16 ergs
- A state-of-the-art F45® studio
- A circuit room with Cybex resistance machines, a rowing erg and stretching mat
- Outdoor Kouri Parcourse with 8 different exercise pieces
- A 25-meter, eight-lane swimming pool and separate diving well with 350,000 gallons of crystal-clear climate controlled water
- Locker rooms featuring restrooms, lockers, showers and a dry sauna
- Heskett Outdoor Court Complex with four tennis courts, one futsal court and two half court basketball courts

### **Campus Recreation Programs**

**Programs encompassing all sorts of fantastic opportunities for fitness and fun and relaxation**

- **Aquatics**  
The natatorium is the perfect place to get an impact free workout, have a little fun with friends or learn to swim. The consistently clean and controlled water/air temperature facility is available for lap swimming, diving, open recreation and more. All under the watchful eye of trained lifeguards. Splash away with friends while playing water basketball, water volleyball, jumping off the diving boards and a host of other fun activities.
- **Intramural Sports**  
Fuel some competitive fire by participating in intramural sports through Campus Recreation. Open to all students. Intramural sporting events range from single-day tournaments to multi-week leagues. Leagues: *Men, Women, Co-Rec, Fraternity, Sorority*;
  - Basketball, Billiards, eSports, Futsal, Flag Football, Soccer, Softball, Volleyball and more.
- **Massage Therapy**

Whether you're nursing sore muscles, rehabbing an injury or just needing to relieve some stress, our massage therapists can provide the healing touch you need to get back to feeling like yourself again - or better.

#### • **Outdoor Adventures**

Join Campus Recreation as they get outdoors, away from campus and enjoy some fun. Affordable outdoor recreation and adventure opportunities allow students, faculty and staff to get involved! The trips offer a chance to get engaged at the level that fits your interests and abilities.

#### • **Shocker Fit**

Shocker Fit is dedicated to providing safe, fun and effective FREE group fitness classes to Wichita State University students and Campus Recreation members. All of their instructors are trained and passionate about providing a variety of classes to challenge ALL fitness levels.

- F45<sup>®</sup>, Glide Fit<sup>™</sup> and Glide Fit<sup>™</sup> Yoga

#### • **Shocker Rowing**

A national player, taking on such perennial powers as Harvard, as well as local and regional competitors. Categorized as an independent varsity sport, the program comprises of both men and women and is divided into Championship, Developmental and Recreational Teams.

#### • **Special Events**

We invite everyone to participate in a number of healthy lifestyle events and activities. These events are a collaborative effort between other Wichita State departments, as well as many Wichita area businesses.

- Beach Party, Big Pink Volleyball, F45<sup>®</sup> playoffs, Finals Frenzy, 5k/1k Pumpkin Run, Puppy Paddle, RecFest, S'mores and Oars, Wellness Expo, and Wu Lifts

#### • **Sport Clubs**

Organized and run by students, sport clubs at Wichita State offer a great way to develop skills while engaging in serious competition.

- Badminton, Cricket, Cycling, Disc Golf, Gaming, Judo, Quidditch, Shooting Sports, Soccer: Men's and Women's, Table Tennis, Ultimate Frisbee, Volleyball: Men's and Women's, Water Ski and Wakeboard, and WSU Student Officials Association

Campus Recreation is here to provide students with solutions to their fitness, leisure and recreational needs. To learn more about the programs and services provided check out the Campus Recreation webpage (<http://wichita.edu/campusrec/>)<sup>1</sup>, Facebook (<https://www.facebook.com/WichitaStateCampusRecreation/>)<sup>1</sup>, Twitter ([https://twitter.com/WSU\\_CampusRec/](https://twitter.com/WSU_CampusRec/))<sup>1</sup> or speak with a guest services assistant at 316-978-3082.

<sup>1</sup> Link opens new window.

### **Child Development Center**

The WSU Child Development Center is located at 3026 East 21st Street North, at the NW corner of Hillside and 21st Street. It is a licensed child care center for children of WSU students, faculty, staff and alumni. A diverse staff of qualified lead teachers and WSU student assistants facilitates developmentally appropriate activities — art, language, science, math, music and literature — in a hands-on learning environment. The child care center is open Monday through Friday from 7:30 a.m. to 5:30 p.m. for children 6 weeks to 6 years old.

Enrollment is limited so it is recommended to get on the waiting list as soon as possible. There is a \$70, nonrefundable fee to be added to the waitlist.

Students taking 6 credit hours or more receive a \$50 discount. Students who receive financial aid and have an EFC of 0 receive a \$100 discount.

For more information, call 316-978-3109, or visit the Child Development Center website (<http://wichita.edu/childdevelopmentcenter/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

### **Counseling and Prevention Services**

Counseling and Prevention Services (CAPS) provides mental health treatment, training and prevention to support WSU community wellness, while fostering optimal academic and personal growth.

- Offers low cost, confidential mental health services provided by licensed mental health providers to enrolled WSU students. CAPS will not turn students away for inability to pay.
- Call to schedule an appointment at 316-978-4SWC (4792) or schedule first time appointments on the CAPS website (<https://www.wichita.edu/caps/>)<sup>1</sup>. Please notify front office staff of any safety emergencies.
- Offers formal psychological, ADHD and learning disability assessments.
- Provides support to the university, departments, faculty and staff with behavior and mental health consultation and community referral assistance.
- Offers mental wellness programming and education to campus including the #WSUWeSupportU Suspenders4Hope mental wellness and suicide prevention program and weekly free meditation livestream, Keep Calm and Breathe On-line. Trainings are available to reduce stigma and educate regarding mental wellness, suicide prevention, self-care, healthy relationships and stress management, among other topics.
- Provides psychiatric medication services for students receiving ongoing therapy through the Center in partnership with Student Health Services and a consulting psychiatrist.
- Located in the Steve Clark YMCA and Student Wellness Center. One convenient check-in for both health and mental health services.

Contact Counseling and Prevention Services in the Student Wellness Center, at 316-978-4792, or on the Counseling and Prevention Services website (<https://wichita.edu/counselingtesting/>)<sup>1</sup>. Follow CAPS on social media, @ShockersCAPS, for mental wellness resources. Office hours are Monday through Friday, 8 a.m. to 5 p.m.

<sup>1</sup> Link opens new window.

### **Student Health Services**

Student Health Services (SHS) provides professional medical care and health education to enrolled students by licensed health care providers. General health care services are available, ranging from routine and preventive care to managing acute illnesses and minor injuries. SHS offers convenient onsite laboratory and medication services including vaccinations. Staff are available to provide health education on a variety of topics both in and out of the classroom setting. All services are confidential.

#### **Features**

- Outpatient care for acute and long-term illnesses and minor injuries
- No insurance is needed to be seen at Student Health
- Low cost services — see the SHS website (<https://www.wichita.edu/shs/>)<sup>1</sup> for information on charges and financial policies

- Physical exams for class requirements or for general health
- Gynecological services including pap tests, birth control and pregnancy testing
- Medications — over the counter and prescriptions when ordered by our providers
- Lab services including onsite rapid testing, blood draws and testing for sexually transmitted disease
- Free STI testing events during fall and spring semesters
- Vaccinations
  - Routine and travel immunizations
  - Ongoing allergy shot regimens
  - Annual flu shots each fall
- myShockerHealth (<https://studenthealth.wichita.edu>)<sup>1</sup> — a secure web portal providing 24 hour access to specific student health services including making an appointment, requesting a medication refill, exchanging messages with providers, checking Student Health financial accounts and paying a bill. A link to the portal is found on the SHS website (<http://wichita.edu/shs/>)<sup>1</sup>.
- In-network providers for UHCSR, Blue Cross/Blue Shield of KS with Aetna and UHC coming soon

Appointments are encouraged and can be scheduled anytime through the student portal (<http://studenthealth.wichita.edu>)<sup>1</sup> or by calling 316-978-4SWC (4792).

For more information, visit the Student Health Services website (<http://wichita.edu/shs/>)<sup>1</sup>.

Student Health is located in the Student Wellness Center inside the YMCA on the WSU main campus. Hours are Monday - Friday 8 a.m. to 5 p.m.

<sup>1</sup> Link opens new window.

## Rhatigan Student Center

The Rhatigan Student Center (RSC) is the community center for Wichita State University. Through its facilities and services, the RSC serves students, faculty, staff, alumni and the Wichita community.

The RSC Food Court features Panda Express, Chick-Fil-A Express®, Pizza Hut Express®, Starbucks and Freddy's Frozen Custard & Steakburgers.

The Shocker Store, on the first floor of the RSC, stocks textbooks for rent or purchase, casual and professional Shocker apparel, art supplies, and Shocker souvenirs and gifts.

The RSC's Shocker Sports Grill and Lanes is for leisure use. Located on the lower level of the RSC, it includes billiards, bowling, poker tournaments, darts, and fun foods and beverages. It's the perfect place for Shocker basketball watch parties, birthday parties and group events.

The RSC has meeting rooms of all sizes, as well as a 7,800 square foot ballroom, and all are made available for campus and noncampus group rentals at reasonable rates. The University Event Services office schedules the use of all facilities in the RSC as well as most university facilities for out-of-classroom use.

The RSC is home for the Student Government Association, Student Advocate, the Office of Diversity and Inclusion, Student Affairs, Student Involvement, the Shocker Card Center, the University Information Center (UIC), Commerce Bank, Lords and Ladys Hair Salon, and the Engraving Shop.

The nationally-ranked Shocker men's and women's bowling teams are also housed in the RSC.

For more information, visit the RSC online (<http://wichita.edu/RSC/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

## Sports and Recreation

Numerous sports and recreation programs exist at the university.

As an NCAA Division I member, Wichita State competes in the American Athletic Conference. WSU teams compete in men's and women's basketball, baseball, softball, men's and women's cross country, men's and women's indoor and outdoor track and field, men's and women's tennis, men's and women's golf, and women's volleyball. The university fields teams in men's and women's bowling and men's and women's rowing as independent sports.

There is also an extensive campus recreation program. Club sports include eSports, spirit squad, dance squad, racquetball, soccer, men's volleyball, wheelchair athletics, ice hockey, aikido and more. Intramural sports include flag football, basketball, table tennis, badminton, soccer, softball, bowling, swimming, racquetball and more.

Students with a current Shocker ID card are admitted free to all varsity athletic events.

### Sport Facilities

The 10,506-seat *Charles Koch Arena*, which is used for intercollegiate basketball and volleyball games; the 7,851-seat *Eck Stadium – Home of Tyler Field*, home to the Shocker baseball program; the *Sheldon Coleman Tennis Complex* with eight lighted courts, home to WSU's intercollegiate tennis program; the 1,000-seat *C. Howard Wilkins Softball Facility* for intercollegiate softball; and the 24,000-seat *Cessna Stadium* for intercollegiate track and field. Visit Shocker sports online (<https://goshockers.com>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

## University Policies and Procedures

### Notice of Nondiscrimination

Wichita State University (WSU) does not discriminate in its employment practices, or in its educational programs or activities on the basis of age (40 years or older), ancestry, color, disability, ethnicity, gender, gender expression, gender identity, genetic information, marital status, national origin, political affiliation, pregnancy, race, religion, sex, sexual orientation, or status as a veteran. WSU also prohibits retaliation against any person making a complaint of discrimination or against any person involved or participating in the investigation of any such allegation. Sexual harassment, sexual assault, dating violence, domestic violence and stalking are forms of sex discrimination and are prohibited under Title IX of the Education Amendments Act of 1972, other federal law and WSU policy. The following persons have been designated to handle inquiries regarding WSU's non-discrimination policies: the Institutional Equity and Compliance Director (Telephone: 316-978-3205), Title IX Coordinator (Telephone: 316-978-5177), or Equal Opportunity Coordinator (Telephone: 316-978-3186), each located at Wichita State University, 1845 Fairmount, Wichita, KS 67260, Human Resources Building.

Individuals who believe they have experienced discrimination or retaliation in violation of this policy should contact the following:

- **Christine Taylor, J.D., LL.M., Director Institutional Equity and Compliance**

Wichita State University  
Human Resources Center, 110A  
1845 Fairmount, Wichita KS 67260-0138  
Telephone: 316-978-3205  
Email: christine.taylor@wichita.edu

• **Sara Zafar, J.D., Title IX Coordinator**

Wichita State University  
Human Resources Center, 116  
1845 Fairmount, Wichita KS 67260-0138  
Telephone: 316-978-5177  
Email: sara.zafar@wichita.edu

• **Michael Irvin, J.D., MPA, Equal Opportunity Coordinator**

Wichita State University  
Human Resources Center, 110  
1845 Fairmount, Wichita KS 67260-0138  
Telephone: 316-978-3186  
Email: michael.irvin@wichita.edu

• **Isabel Medina Keiser, Section 504/ADA Coordinator and Director of Disability Services**

Wichita State University  
Office of Disability Services  
1845 Fairmount, Wichita KS 67260  
Telephone: 316-978-6970  
Email: isabel.medinakeiser@wichita.edu

• **Kansas Human Rights Commission (<http://www.khrc.net/>)<sup>1</sup>**

900 SW Jackson, Suite 568-South  
Landon Office Building  
Topeka, KS 66612-2818  
Telephone: 785-296-3206  
Fax: 785-296-0589  
Email: khrc@ink.org

• **Equal Employment Opportunity Commission (<https://www1.eeoc.gov/field/kansascity/>)<sup>1</sup>**

Gateway Tower II  
400 State Ave., Suite 905  
Kansas City, KS 66101  
Telephone: 800-669-4000  
Fax: 913-551-6957  
TTY: 800-669-6820

• **Office for Civil Rights, Kansas Office**

U.S. Department of Education  
Office for Civil Rights  
One Petticoat Lane  
1010 Walnut St, Suite 320  
Kansas City, MO 64106  
Telephone: 816-268-0550  
Fax: 816-268-0599; TDD: 800-877-8339  
Email: OCR.KansasCity@ed.gov

• **Office for Civil Rights, National Headquarters**

U.S. Department of Education  
Office for Civil Rights  
Lyndon Baines Johnson Dept. of Education Building  
400 Maryland Avenue, SW  
Washington, DC 20202-1100  
Telephone: 800-421-3481  
Fax: 202-453-6012; TDD: 800-877-8339  
Email: OCR@ed.gov

<sup>1</sup>Link opens new window.

## Student Responsibility

Students at Wichita State University have the following responsibilities:

1. To consult their advisors on all matters pertaining to their academic careers, including changes in their programs;
2. To observe all regulations of their colleges and select courses according to the requirements of that college;
3. To attend all meetings of each class in which they are enrolled (instructors will announce at the beginning of the semester if they consider attendance in computing final grades);
4. To fulfill all requirements for graduation;
5. To be personally responsible for fulfilling all requirements and observing all regulations at Wichita State;
6. To answer promptly all written notices from advisors, faculty, deans and other university officers;
7. To file an application for degree in the appropriate college office by the published deadline for the semester in which graduation is intended; and
8. To enroll in only those courses for which the stated prerequisite(s) have been satisfactorily completed. Failure to comply with this procedure may result in administrative withdrawal.

Students also should comply with the principles in the following statement:

Wichita State University reaffirms the principle of intellectual freedom in scholarly activity for university students, and it recognizes the full citizenship rights of students in inquiry, discussion and such actions as they may choose to take on public issues.

The rights and freedoms of students involve concomitant responsibilities. Incumbent on all students, as on all citizens, is the responsibility to observe the university's rules of orderly procedures and the laws of the larger community of which the university is a part. In the matter of actions on public issues, to speak one's opinion, to petition, to distribute literature, to assemble peacefully and hold meetings, to use the persuasion of ideas, and other actions within the bounds of orderly and lawful procedures are sanctioned by the university. But infringement on the rights of others, acts or threats of violence to persons, destruction of property, disruption, or other interference with the normal functioning of the university and its personnel and other disorderly and unlawful acts will not be countenanced.

Within its sphere of responsibility the university will afford students proper procedural safeguards to resolve matters in dispute. Those who willfully violate university standards must expect to face disciplinary action on the part of the institution, which may include reprimand, administrative withdrawal, and suspension or expulsion, consistent with campus provisions for due process.

### Student Code of Conduct

The Student Code of Conduct and Student Code of Conduct Handbook outlines university behavior expectations for students, student groups and student organizations in keeping with institutional values and to meet the university's legal obligations. These expectations cover topics such as academic integrity, drug use, hazing, alcohol, weapons, physical violence and harassment. The conduct procedures (in the Student Code of Conduct Handbook) outline the actions needed to file a complaint and the course followed in the student conduct process. Additionally,

information on informal and conflict resolution processes for student-involved conflicts is also provided.

The Student Code of Conduct is located online at the student conduct webpage (<https://wichita.edu/studentconduct/>)<sup>1</sup>. Individuals wanting to file an incident report about a student, student group or student organization can submit a report online ([https://www.wichita.edu/services/student\\_affairs/report-it.php](https://www.wichita.edu/services/student_affairs/report-it.php))<sup>1</sup>.

<sup>1</sup> Link opens new window.

### ***Sexual Harassment, Discrimination and Retaliation for Employees, Students and Visitor Policy***

Wichita State University is committed to providing a workplace and educational environment, as well as other benefits, programs and activities, that are free from discrimination, harassment and retaliation. To ensure compliance with federal and state civil rights laws and regulations, and to affirm its commitment to promoting the goals of fairness and equity in all aspects of the educational program or activity, the University has developed internal policies and procedures that provide a prompt, fair and impartial process for those involved in an allegation of discrimination or harassment on the basis of sex.

Wichita State University Policy prohibits all forms of discrimination on the basis of sex. Sometimes, discrimination involves the exclusion from activities, such as admission, athletics or employment. Other times, discrimination takes the form of harassment, or can encompass sexual harassment, sexual assault, stalking, sexual exploitation, dating violence or domestic violence. When an alleged policy violation is reported, the allegations are subject to resolution using the Formal Grievance Process as determined by the Title IX Coordinator and set forth in WSU Policy 3.06/Sexual Harassment, Discrimination and Retaliation for Employees, Students and Visitors.

Information regarding the university's policies can be found in 3.06/Sexual Harassment, Discrimination and Retaliation for Employees, Students and Visitors ([https://www.wichita.edu/about/policy/ch\\_03/ch3\\_06.php](https://www.wichita.edu/about/policy/ch_03/ch3_06.php)).

Campus and community resource information can be found at the Care Team's website (<http://wichita.edu/care/>)<sup>1</sup> or by contacting the Office of Institutional Equity and Compliance at 916-978-3205.

<sup>1</sup> Link opens new window.

### **Student Academic Integrity**

A standard of academic integrity, fairly applied to all students, is essential to a learning environment. Students who compromise the integrity of the classroom are subject to disciplinary action by their instructor, their department, their college and/or the university. Violations of classroom standards of academic integrity include, but are not limited to:

1. Plagiarism;
2. Unauthorized use of possession of material or resources;
3. Unauthorized collaboration or consultation;
4. Fabrication, falsification or misrepresentation of information;
5. Academic interference;
6. Unauthorized resubmission;
7. Facilitation of academic misconduct;
8. Bribery;

9. Unauthorized sale, distribution or receipt of academic materials; and

10. Research misconduct.

The Academic Integrity Policy is located online at the student conduct webpage (<https://www.wichita.edu/studentconduct/>)<sup>1</sup>.

Individuals wanting to file an incident report about a student, student group or student organization can submit a report online ([https://www.wichita.edu/services/student\\_affairs/report-it.php](https://www.wichita.edu/services/student_affairs/report-it.php))<sup>1</sup>.

<sup>1</sup> Link opens new window.

## **Release of Student Information Policy (Privacy Law)**

The Family Educational Rights and Privacy Act of 1974 (FERPA), as amended, is a federal law that sets forth requirements pertaining to the disclosure of, and access to, education records maintained by Wichita State University.

Wichita State University accords all rights under the law to students. Those rights are:

1. The right to inspect and review the student's education records;
2. The right to request amendment of the student's education records to ensure that they are not inaccurate, misleading or otherwise in violation of the student's privacy or other rights;
3. The right to consent to disclosures of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosure without consent; and
4. The right to file with the U.S. Department of Education a complaint concerning alleged failures by Wichita State University to comply with the requirements of FERPA.

No one outside the institution shall have access to, nor will the institution disclose any information from, students' education records without the prior written consent of the student **with the exception of** disclosure to:

1. Personnel within the institution who have a legitimate educational interest,
2. Persons or organizations providing students financial aid,
3. Accrediting agencies carrying out an accreditation function,
4. Persons in compliance with a judicial order,
5. Persons in an emergency in order to protect the health or safety of the student or other persons, or
6. Other persons or entities to whom disclosure is permitted under FERPA.

Upon request, the institution may also disclose, without the student's consent, education records to officials of another school in which the student seeks or intends to enroll, or is enrolled.

Within the Wichita State community, only those members, individually or collectively, acting in the students' "legitimate educational interests" are allowed access to student education records. These members include personnel in the offices of admissions, registrar, financial operations, computing center, dean of students, financial aid, career services, cooperative education, planning, testing, library, college deans, academic advisors, and other administrative and academic personnel within the limitation of their need to know. "Legitimate educational interests" means:

1. The information or records requested is/are relevant and necessary to the accomplishment of some task or determination; and
2. The task or determination is an employment responsibility for the inquirer or is a properly assigned subject matter for the inquirer's employment responsibility.

A Social Security number and student status data may be provided to other state agencies for use in detection of fraudulent or illegal claims against state monies.

## Family Educational Rights and Privacy Act (FERPA)

### 1. Definitions

- a. **Attendance:** Attendance at Wichita State University is considered to begin on the announced first day of classes for the initial semester (fall, spring or summer) for which a person is enrolled in one or more classes, and shall include any person "attending" on campus or via any format (e.g., online, face-to-face, hybrid, etc.) as prescribed by the class requirements. Noncredit-bearing courses, workshops, seminars, etc., developed for and targeted to external audiences or consisting solely of minor children shall not be considered in attendance for the purposes of this policy.
- b. **Consent:** Consent shall be in writing and shall be signed and dated by the student giving consent. It shall include:
  - i. Specification of records to be released;
  - ii. Purposes for such release; and
  - iii. Parties or class of parties to whom such records may be released.
- c. **Directory Information:** FERPA defines directory information as: "Information contained in an education record of a student which would not generally be considered harmful or an invasion of privacy if disclosed." Under FERPA, such information includes, but is not limited to, the student's name, address, telephone listing, electronic mail address, photograph, age in years, place of birth, major field of study, dates of attendance, grade level, enrollment status, participation in officially recognized activities and sports, weight and height of members of athletic teams, degrees, honors and awards received, and the most recent educational agency or institution attended.
- d. **Disclosure:** Permitting access to, or the release, transfer, or other communication of, the education records of the student or the personally identifiable information contained therein, orally, or in writing, or by electronic means, or by any other means to any party.
- e. **Education Records:** Those records that are directly related to a student and that are maintained by the university or by a party acting for the university. A record means any information recorded in any way, including, but not limited to, handwriting, print, tape, film, microfilm, microfiche, computerized and/or digitized storage. Records described in items i-vi below are excluded from the category of "education records." Therefore, the law does not guarantee the right of student access to the following:
  - i. **Sole possession records:** Records that are kept in the sole possession of the maker, are used only as a personal memory aid, and are not accessible or revealed to any other person except a temporary substitute for the maker of the record.
  - ii. **Employment records:** Records related solely to the employment of a student by the institution, provided the student is not "employed as a result of his or her status as a student." Records on a work study or GTA/GRA student are covered by FERPA.
  - iii. **Medical and mental health records used only for the treatment of the student:** Such records may be personally reviewed by a physician or other appropriate professional of the student's choice and with the student's written consent.
  - iv. **University law enforcement records:** Records of the WSU Police Department maintained solely for law enforcement purposes, which are maintained separately, and which are not disclosed to individuals other than law enforcement officials sharing the same territorial jurisdiction.
  - v. **Alumni records:** Records that contain only information relating to a person after that person is no longer a student at the university. An example would be information collected by the university or the WSU Alumni Association pertaining to the accomplishments of its alumni.
  - vi. **Peer graded papers and exams prior to the grade being recorded in the instructor's grade book.**
- f. **Legitimate Educational Interests:** The interests of university personnel who have a demonstrably legitimate need to review records in order to fulfill their official professional responsibilities. Such responsibilities must involve the university in its primary educational and scholarly functions and/or secondary administrative functions of maintaining property, disbursing funds, keeping records, providing living accommodations and other services, sponsoring activities, and protecting the health and safety of persons or property in the university community. If a question arises concerning the legitimacy of a request to review records, such question shall be referred to the registrar and/or the general counsel prior to release of the records.
- g. **Parent:** Includes a parent, guardian, or individual acting as a parent of a student in the absence of a parent or guardian.
- h. **Personally Identifiable Information:** Includes the name of the student; the student's parent(s) or other family member(s); the address of the student or student's family; personal identifiers such as a social security number, student number, or biometric record; or other indirect identifiers such as the student's date of birth, place of birth, and mother's maiden name; or other information that, alone or in combination, is linked or is linkable to a specific student that would allow a reasonable person in the school community, who does not have personal knowledge of the relevant circumstances, to identify the student with reasonable certainty; or information requested by a person who WSU reasonably believes knows the identity of the student to whom the education record relates.
- i. **School Official:** Includes a teacher, school principal, president, chancellor, board member, trustee, registrar, counselor, admissions officer, attorney, accountant, human resources professional, information systems specialist, and support or clerical personnel. A contractor, consultant, volunteer, or other party to whom a school or institution has outsourced institutional services or functions may also be considered a "school official" provided that they are performing an institutional service or function for which the agency would otherwise use employees and is under the direct control of the agency or institution with respect to the use and maintenance of education records.
- j. **Student:** Anyone who is or has been enrolled at Wichita State University, with the following exception: A person who has applied for admission to, but has never been in attendance at a component unit of the university (such as the various schools

and colleges of the university), even if that individual is or has been in attendance at another component unit of the university, is not considered to be a student with respect to the component to which an application for admission has been made. Enrolled is defined as registered for any course in any format (online, face-to-face, hybrid) on the first day of a regular (full) term — spring, summer or fall.

- k. **Unit Custodian of Student Records:** The head of each academic or administrative unit that is responsible for the education records within the unit (unless otherwise defined elsewhere in this policy).

## 2. Student Access to Education Records

- a. A student has the right and shall be accorded the opportunity to inspect, review, and/or receive copies of his or her educational record, except as provided for below. The university must comply with the student's request within a reasonable period of time, not to exceed 45 days after the request.
- b. The student has the right to a reasonable request for explanation of the records and to copies of the records where necessary to provide full inspection and review. Such copies will be provided at the student's request and expense; however, the charge to the student for any such records may not exceed \$0.25 per page. The university may not charge a fee to search for or retrieve a record. If any question arises as to the identity of the requesting student, the student shall be asked to provide his or her university ID card and/or other positive identification.
- c. The university is not required to afford inspection and review of the following records:
  - i. Financial records of the student's parents submitted as part of the financial aid process;
  - ii. Confidential letters and statements of recommendation that were placed in the student's education records prior to January 1, 1975, if such letters were submitted with an understanding of confidentiality, and are used only for the purpose for which they were specifically intended;
  - iii. Confidential letters and statements of recommendation received after January 1, 1975, for which the student has signed a waiver of the right to access and which pertain to:
    1. Admission to this or any other educational institution or agency;
    2. Application for employment; or
    3. Receipt of an honor or honorary recognition so long as these letters are used solely for the purpose(s) for which they were specifically intended.
  - iv. Records connected with an application to attend Wichita State University if that application was denied.
  - v. Those records which are excluded from the FERPA definition of education records.
- d. If an education record contains information about more than one student, the student may inspect only the information about himself or herself.

## 3. Waiver of Rights

The university may request, but not require, students to waive rights under this policy. All waivers must be in writing and signed by the student. Applicants for admission to the university and eligible students may waive rights to review confidential letters of recommendation only if:

- a. The applicant or student, upon request, is notified of the names of all persons providing letters;
- b. The letters are used only for the purpose for which they were originally intended;

- c. The waiver is not required as a condition of admission or for any other service or benefit of the university.

All waivers under this paragraph must be executed by the individual, regardless of age, rather than by the parent or legal guardian of the individual. All waivers must be in writing and signed by the student. The student may revoke any waiver in writing, the revocation to apply only to documents received or entered into the record after the date of execution of the revocation.

## 4. Disclosure of "Personally Identifiable" and "Directory Information"

The university shall obtain the written consent of the student before disclosing personally identifiable information from education records, other than directory information, except as otherwise provided in this policy.

The university may, without the consent of the student, disclose *directory information*. If a student wishes to have such information withheld, he or she must notify the Office of the Registrar in writing, as described previously. If a student wishes to prevent the inclusion of such information in the online student directory, he or she must notify the Office of the Registrar.

The university may disclose personally identifiable information from a student's education record(s) without the consent of the student if the disclosure is made to:

- a. School officials within the institution determined to have a legitimate educational interest(s).
- b. Authorized persons to comply with a judicial order or lawfully issued subpoena, provided the university makes a reasonable effort to notify the student in advance of compliance; except the university will not disclose to the student information about a grand jury subpoena, a subpoena issued for a law enforcement purpose when notice is prohibited, or a court order obtained by the United States Attorney General or Assistant Attorney General in investigations or prosecutions of certain criminal offenses or an act of terrorism, in accordance with the law or regulations, certain officials of the U.S. Department of Education, the Comptroller General and state and local educational authorities in connection with an audit or evaluation of federal or state supported education programs, or for the enforcement of or compliance with Federal legal requirements that relate to those programs.
- c. Financial aid personnel in conjunction with an application for or receipt of financial assistance, provided that the disclosure is needed:
  - i. To determine the eligibility of the student for financial aid;
  - ii. To determine the amount of financial aid;
  - iii. To determine the conditions for the financial aid; or
  - iv. To enforce the terms or conditions of the financial aid.
- d. Appropriate parties, including parents, in connection with an emergency, if knowledge of the information is reasonably considered to be necessary to protect the health or safety of the student or other individuals. Disclosures for this purpose shall take into account the totality of the circumstances pertaining to the threat to the health or safety of a student or other individuals. If the university determines that there is an articulable and significant threat to the health or safety of a student or other individuals, it may disclose information from education records to any person whose knowledge of the information is reasonably considered necessary to protect the health or safety of the student or other individuals.
- e. A parent regarding the student's violation of any federal, state or local law, or of any rule or policy of the university, governing the use or possession of alcohol or a controlled substance if

the institution determines that the student has committed a disciplinary violation with respect to that use or possession and the student is under the age of 21 at the time of disclosure to the parent.

- f. Parent(s) or legal guardian(s) of dependent students who provide a written request for grades to the university registrar pursuant to Board of Regents policy. Dependency, for this purpose, is defined by the Internal Revenue Code of 1954, Section 152. The student will be notified in writing and/or electronically of any disclosure of grades made to the student's parent(s) or legal guardian(s).
- g. Another institution of postsecondary education where the student seeks or intends to enroll, or is enrolled, so long as the disclosure is for purposes related to the student's enrollment or transfer.
- h. Authorized representatives of federal, state and local educational authorities, to organizations conducting studies for or on behalf of educational agencies or institutions, to accrediting organizations, to comply with judicial orders or lawfully issued subpoenas, to victims of a crime of violence or nonforcible sex offense, in connection with university disciplinary proceedings, or if disclosure concerns sex offenders and other individuals required to register under federal law.
- i. The university student health service is required to report to the Kansas Department of Health the names of students who have certain communicable diseases such as hepatitis, tuberculosis, and venereal disease. The health service is also required to report to local law enforcement officials the name of any student who is wounded with a deadly weapon.

#### 5. *Notice to Third Parties*

The university must inform the parties to whom personally identifiable information is given that they are not permitted to disclose that information to others without the written consent of the student and that the information is to be used only for the purpose(s) intended.

#### 6. *Providing Copies of Disclosed Records*

When the unit custodian discloses personally identifiable information from the education record of a student, the unit custodian shall, at the student's request and expense, provide a copy of the disclosed record to the student, unless otherwise specified by this policy.

#### 7. *Destruction of Records*

Education records shall be maintained consistent with university policy on the retention of records. No education record, however, may be destroyed if there is an outstanding request to inspect and review the record. Also, the record of access to the education record and any explanations which are a part of the record must be maintained for as long as the education record to which it pertains is maintained.

#### 8. *Maintaining Records of Requests and Disclosures*

The unit custodian shall maintain a record of requests and disclosures of personally identifiable information from a student's education record. The record shall include, whether requests are granted or not, the name(s) of the person(s) who requested the information and their legitimate interests in the information.

Records of requests and disclosures will not be maintained:

- a. For requests made by the student;
- b. For requests for which the student has given written consent;
- c. For requests made by school officials with legitimate educational interests;
- d. For requests for directory information;

- e. For disclosures in compliance with certain judicial orders or lawfully issued subpoenas, after a reasonable attempt has been made to notify the eligible student or parent. The record of requests and disclosures may be inspected by the student, by school officials responsible for the custody of the records, and by federal and state officials who have been given permission to access records by the registrar.

#### 9. *Students' Right to Challenge Information Contained in Education Records*

- a. The student has the right, upon reasonable request, for a brief explanation and interpretation of the record in question from the respective unit custodian.
- b. The unit custodian of the challenged education record, after reviewing the record with the student, may settle the dispute informally with the student with regard to the deletion or modification of the education record. The unit custodian shall make his or her decision within a reasonable amount of time and shall notify the student of the decision.
- c. In the event the unit custodian disapproves the student's request to delete or modify the record in question, the student shall be notified by the unit custodian, in writing, of the decision and of the student's right to a formal hearing upon the request.
  - i. All requests for formal hearings by the student shall be directed to the registrar, and shall contain a plain and concise written statement of the specific facts constituting the student's claim.
  - ii. The hearings shall be conducted by a university staff member (hearing officer) who does not have a direct interest in the outcome of the challenge and who shall be appointed by the registrar. The hearing shall be held within a reasonable time of receipt of the student's request and the student shall be notified reasonably in advance by the hearing officer of the date, place, and time of the hearing.
  - iii. At the hearing the student shall be afforded a full and fair opportunity to present evidence relevant to the claim and may, at his or her expense, receive assistance or be represented by any individuals of choice.
  - iv. Based solely on the evidence presented at the hearing, and within ten (10) working days of the hearing, the hearing officer shall make a written recommendation to the registrar together with written findings of fact concerning the student's request. Within an additional fourteen (14) working days of receipt of the hearing officer's report, the registrar shall notify the student in writing of the decision. The decision must include a summary of the evidence and the reasons for the decision.
- d. In the event the decision of the registrar is adverse to the student's request, the student shall be notified of the opportunity to place with the education record a summary statement commenting upon the information in the records and/or setting forth any reason for disagreeing with the decision. If the questioned document is released to a third person, the student's summary statement shall accompany the release of any such information. The summary information shall be maintained for as long as the contested record is maintained.
- e. If a student challenge to the content of a given record is successful, the university shall amend the education record accordingly and so inform the student. Upon the student's specific written request to the registrar, the university shall make a reasonable effort to contact student-designated third persons who have received copies of the previous record to inform them of the change which has been made.

10. A student may challenge the content of an education record on the grounds that the record is inaccurate, misleading or otherwise in violation of the privacy or other rights of the student. No hearing under this policy shall be granted for challenging the underlying basis for the grade. However, the accuracy of its recording could be challenged.

The following procedure for challenging the content of an education record shall apply:

11. **Complaint Procedure**

If a student believes that the university is not in compliance with FERPA, the student should first contact the office involved and/or the Office of the Registrar.

If a student wishes to file a complaint with the federal government concerning the university's failure to comply with FERPA, he or she must submit the complaint, in writing, within 180 days of an alleged violation of FERPA to the Family Policy Compliance Office (FPCO), U.S. Department of Education, 400 Maryland Avenue, S.W., Washington, D.C. 20202. The FPCO office will notify the student when the complaint has been received. The FPCO office will investigate the complaint, and may require further information of its findings and basis for such findings. In the event the university is found not to be in compliance, it will be afforded the necessary time to comply. If it does not then comply, the matter will be sent to a review board for a hearing. For information concerning this hearing procedure, see 34 C.F.R. Sections 99.64 through 99.67.

**Public Notice Designating "Directory Information"**

The Family Educational Rights and Privacy Act (FERPA) of 1974, as amended, designates certain information related to a student as "directory information." FERPA gives the university the right to disclose such information to anyone inquiring without having to ask a student for permission, unless the student specifically requests in writing that *all* such information not be made public without written consent, except by the National Student Clearinghouse to loan guarantors.

Wichita State University hereby designates the following student information as public or directory information.

*Directory information includes the student's name, address, telephone listing, electronic mail address, photograph, age in years, place of birth, major field of study, dates of attendance, grade level, enrollment status, participation in officially recognized activities and sports, weight and height of members of athletic teams, degrees, honors and awards received, and the most recent educational agency or institution attended.*

*The name(s) and address(es) of the student's parent(s) or guardian(s) may be disclosed when used for an official university news release about the student's receipt of degrees or awards or about participation in officially recognized activities or sports. Parent name, address, telephone number and email address is designated as directory information for the limited purpose of disclosure to the Wichita State University Foundation, Inc. to support programs and activities of the institution and the WSU Foundation.*

**Currently enrolled students may withhold disclosure of directory information** (on an all or none basis) to non-institutional persons or organizations. If a student wishes to withhold the disclosure of all directory information items, she or he may obtain the request form from the Office of the Registrar, 117 Jardine Hall, or call 316-978-3090. Return the completed form, along with a *readable* copy of a government-issued photo ID (e.g., a driver's license) to the

Office of the Registrar. The request form will be processed within one business day of receipt.

Consider carefully the consequences of any decision to withhold directory information, as any future requests for such information will be refused. Examples of, but not limited to, potential impacts are: no acknowledgement of a student's attendance at WSU to potential employers, no verification of degrees to requestors, no printing of the student's name in the commencement program and no press releases pertaining to graduation and/or honors. The institution will honor a request to hold directory information but does not assume responsibility to contact the student for subsequent permission to release it. Regardless of the effect upon the student, WSU assumes no liability for honoring instructions that such information be withheld.

**If a student has previously submitted a nondisclosure request**, but now wishes to disclose the information (i.e., release the nondisclosure hold), please contact the Office of the Registrar.

**Additional Policies and Procedures**  
**Injury or Accident**

The state of Kansas and Wichita State University do not insure against, and are not responsible for, accidents or injury to students which may occur during university-sponsored activities on or off campus. The university will make every reasonable attempt to advise students concerning potential danger of accident or injury. Students are expected to act responsibly by taking necessary precautions to prevent accidents. Students also are advised to protect themselves from the financial burden of accident or injury through a personal insurance policy.

**Offender Registry**

Law enforcement agency information concerning registered sex offenders who are employed by or who are currently enrolled at Wichita State University may be obtained from the university police department. This information is made available to the campus community pursuant to the requirements of the Campus Sex Crimes Prevention Act. Further information on any registered offender can be obtained from the Kansas Bureau of Investigation or the sheriff's office in the registrant's county of registration.

**Residency Requirements**

See Residency Defined (p. 30).

**Safety**

Campus safety is a priority at Wichita State. The university campus is well lighted and parking lots are regularly patrolled by WSU police officers. WSU police and parking services personnel are available to provide safety escorts for students in the evenings. In case of emergencies, phones (designated by a blue light at the top of the pole) with direct access to the university police station are strategically placed around the campus.

More information about campus safety including links to emergency news and the option to opt in to ShockerAlert System emergency notifications can be found at the campus safety website (<http://wichita.edu/safety/>)<sup>1</sup>.

The annual security and fire report (<http://wichita.edu/annualsecurityreport/>)<sup>1</sup> is available online. Review safety and crime prevention information in addition to daily crime logs and crime statistics at the police website (<http://wichita.edu/police/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

### **CARE Team** **(Campus Assessment Response Evaluation)**

Wichita State cares about the well-being of all members of the campus community. The CARE Team assesses student concerns and intervenes in a manner intended to promote the success and safety of individual students as well as that of the entire campus community. To submit a concern or learn more about the CARE Team visit their website (<http://wichita.edu/CARE/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

### **Title IX**

Title IX of the Educational Amendments of 1972 prohibits discrimination based on sex in any educational institution that receives federal funding. Wichita State University does not tolerate sex discrimination of any kind including: sexual harassment, sexual assault, domestic violence, dating violence or stalking. These incidents may interfere with or limit an individual's ability to benefit from or participate in the university's educational programs or activities. Wichita State University ("the University") is committed to providing a workplace and educational environment, as well as other benefits, programs and activities, that are free from discrimination, harassment and retaliation. To ensure compliance with federal and state civil rights laws and regulations, and to affirm its commitment to promoting the goals of fairness and equity in all aspects of the educational program or activity, the University has developed internal policies and procedures that provide a prompt, fair and impartial process for those involved in an allegation of discrimination or harassment on the basis of sex. The University upholds the equal dignity of all members of its community and strives to balance the rights of the parties in the grievance process during what is often a difficult time for all those involved.

Students are asked to immediately report incidents to the University Police Department, 316-978-3450, or directly to the Title IX coordinator, 316-978-5177. Students may also report incidents to an instructor, faculty or staff member, who are required by policy to notify the Title IX coordinator. If a student wishes to keep the information confidential, the student may speak with staff members of the Counseling and Prevention Center, 316-978-4792, or Student Health Services, 316-978-4792. For more information, visit the Institutional Equity and Compliance website (<https://wichita.edu/OIEC/>).<sup>1</sup>

<sup>1</sup> Link opens a new window.

### **Tobacco-Free Campus**

Wichita State University is committed to provide a tobacco-free environment for the health, well-being and safety of university students, employees and visitors; accordingly, Wichita State University is a tobacco-free campus.

This policy includes buildings and parking lots and covers traditional as well as other types of tobacco use such as vaping and electronic cigarettes or devices.

### **University Weapons Policy**

For the full text of the policy, please refer to Wichita State University Policy 11.19 (<http://wichita.edu/policiesprocedures/>)<sup>1</sup>.

It is the policy of the Kansas Board of Regents, to the extent permitted by law, to allow concealed carry of handguns and prohibit possession of other weapons and open carry of firearms on the university campus.

Beginning July 1, 2017, any individual who is 21 years of age or older and who is lawfully eligible to carry a concealed handgun in Kansas can do so on the Wichita State University campus except in buildings

and public areas of buildings for which adequate security measures are provided, as restricted by policy, or as otherwise prohibited by law.

There are no university buildings that have been designated as gun-free with permanent adequate security measures. The university may designate a specific location as temporarily gun-free. Appropriate notice will be given whenever this temporary designation is made.

Each individual who lawfully possesses a handgun on campus shall be wholly and solely responsible for carrying, storing and using that handgun in a safe manner and in accordance with law and policy. Nothing in this policy shall be interpreted to require individuals who lawfully possess a handgun to use it in defense of others.

Possession of weapons, other than concealed handguns, anywhere on any campus location shall be prohibited. This includes the open carry of any weapon, including a handgun or handguns. Every entrance to each building and facility at any campus location shall be conspicuously posted with appropriate signs indicating that openly carrying a weapon into that building or facility is prohibited. Additional signs may be posted as appropriate.

<sup>1</sup> Link opens new window.

## Applied Studies, College of

Clay Stoldt, *interim dean*

104 Corbin Ed. Center • 316-WSU-3300

College of Applied Studies Webpage (<http://wichita.edu/education/>)<sup>1</sup>

Clay Stoldt, *associate dean*

Ashlie Jack, *interim associate dean/accreditation officer*

Mark Vermillion, *interim associate dean*

### Departments

**Counseling, Educational Leadership, Educational and School**

**Psychology**, 316-978-3325 — Jody Fiorini, *department chair*; Jason Li, *graduate coordinator*, Counseling; Jason Herron, *graduate coordinator*, Educational Psychology; Angela Beeler, *graduate coordinator*, School Psychology; Jean Patterson, *graduate coordinator*, Educational Leadership (EdD); Kristin Sherwood, *graduate coordinator*, Educational Leadership (MED); Deanna Gooch *graduate coordinator*, Superintendent/District Leadership certificate

**School of Education**, 316-978-3322 — Jim Granada, *interim department chair*; Mara Alagic, *graduate coordinator*, Learning and Instructional Design; Kim Wilson, *graduate coordinator*, Master of Arts in Teaching; Heidi Cornell, *graduate coordinator*, Special Education

**Human Performance Studies**, 316-978-3340 — Rich Bomgardner, *department chair*, Michael Rogers, *graduate coordinator*, Exercise Science

**Sport Management**, 316-978-5445 — Mark Vermillion, *department chair*; Mike Ross, *graduate coordinator*

### Graduate Degree Programs

The College of Applied Studies offers programs leading to the:

- Master of Arts in Teaching (MAT);
- Master of Education (MED) in:
  - Counseling,
  - Educational leadership,
  - Educational psychology,
  - Exercise science,
  - Learning and instructional design,
  - Sport management, and
  - Special education;
- Specialist in Education (EdS) in school psychology; and
- Doctor of Education (EdD) in educational leadership.

### Admission Requirements

Specific admission requirements for each degree specialization are described in each department's section of the Graduate Catalog. Applicants for admission should review admission criteria well in advance of intended enrollment dates to allow sufficient time for the admission process to be completed. Several programs require submission of scores from examinations (e.g., Graduate Record Examination), as well as transcripts and letters of reference.

Minimum admission requirements for full standing include a bachelor's degree from a regionally accredited institution and a grade point average of at least 2.750 (including any postbachelor's graduate work). The student should have no more than 9 credit hours of background deficiencies in the major field of graduate study desired. For most College of Applied Studies degree programs, admission requirements exceed these minimums.

### Graduate Level Licensure

Graduate offerings include courses which help prepare students to meet application requirements for state licensure as principals, district school administrators, school counselors, professional counselors, early childhood teachers, English as a second language/bilingual education teachers, special education teachers, reading specialists and school psychologists.

### Initial Teacher Licensure

Opportunities exist for both undergraduates and degree/nondegree graduate students to pursue initial licensure as a teacher (PreK–12 schools) through Wichita State University. Interested individuals should contact the advising office in the College of Applied Studies, 316-978-3300, or visit the undergraduate majors and minors webpage (<https://wichita.edu/majors/>)<sup>1</sup> to inquire about teacher education as a graduate student.

### Professional Development

Other courses are available to support the continued academic and professional development of educators. Graduate offerings also are available to support careers in sport management and exercise science.

### Certificates Offered

Certificates offered by the College of Applied Studies include:

- Applied behavior analysis,
- Building-level leadership,
- Child/play therapy,
- Clinical mental health counselor to school counselor,
- Engineering education,
- Functional aging,
- Higher education leadership,
- Instructional design in professional practice,
- Interdisciplinary STEM education,
- Literacy,
- Mentoring and coaching,
- Online learning and educational technology,
- School counselor to clinical mental health counselor, and
- Superintendent/district leadership.

### Financial Assistance

Some financial assistance to support graduate study is available, including federal traineeships, assistantships and Wichita State University fellowships. Full-standing status is required to receive financial assistance.

Applications for graduate program admission must be submitted by departmental deadlines to be eligible for student loans and scholarships.

<sup>1</sup> Link opens new window.

## Counseling, Educational Leadership, Educational and School Psychology Degrees and Areas of Specialization

The College of Applied Studies Department of Counseling, Educational Leadership, Educational and School Psychology (<http://wichita.edu/cles/>)<sup>1</sup> offers graduate programs in:

- Counseling (MEd) (p. 70)
- Educational Leadership (MEd and EdD) (p. 75)

- Educational Psychology (MEd) (p. 80)
- School Psychology (EdS) (p. 84)

The department offers Graduate Certificate Programs in:

- Applied Behavior Analysis (ABA) (p. 87)
- Building-Level Leadership (p. 78)
- Child/Play Therapy (p. 73)
- Clinical Mental Health Counselor to School Counselor (p. 73)
- Engineering Education (p. 83)
- Higher Education Leadership (p. 79)
- School Counselor to Clinical Mental Health Counselor (p. 74)
- Superintendency/District Leadership (p. 80)

For further information, please visit the College of Applied Studies Department of Counseling, Educational Leadership, Educational and School Psychology webpage (<http://wichita.edu/cles/>)<sup>1</sup>, or contact us by email at [cesp@wichita.edu](mailto:cesp@wichita.edu).

<sup>1</sup>Link opens new window.

### **Programs in Counseling, Educational Leadership, Educational and School Psychology**

#### **Counseling**

##### **Degree Programs/Tracks**

- MEd in Counseling (p. 70)
  - School Counseling Track
  - Higher Education Counseling Track
  - Clinical Mental Health Counseling Track
  - Sports Counseling Track

##### **Graduate Certificate Programs**

- Child/Play Therapy (p. 73)
- Clinical Mental Health Counselor to School Counselor (p. 73)
- School Counselor to Clinical Mental Health Counselor (p. 74)

#### **Educational Leadership**

##### **Degree Programs**

- MEd in Educational Leadership (p. 77)
- EdD in Educational Leadership (p. 75)

##### **Graduate Certificates and/or Licensure Programs**

- Superintendency/District Leadership (p. 80)
- Building Level License/Principal (p. 78)
- Higher Education Leadership (p. 79)

#### **Educational Psychology**

##### **Degree Program**

- MEd in Educational Psychology (p. 81)

##### **Graduate Certificate Program**

- Engineering Education (p. 83)

#### **School Psychology:**

##### **Degree Programs**

- EdS in School Psychology (Postmaster's) (p. 85)
- EdS in School Psychology (Postbaccalaureate) (p. 84)

### **Courses in Counseling, Educational Leadership, Educational and School Psychology**

- Counseling, Educational and School Psychology (CESP) (p. 277)
- Counseling, Educational Leadership, Educational and School Psychology (CLES) (p. 301)
- Educational Leadership (EL) (p. 328)

## **Counseling**

### **Programs in Counseling**

The counseling program at Wichita State University offers:

- Master of Education in Counseling (p. 70)

For further information, please visit the College of Applied Studies' counseling webpage (<http://wichita.edu/counseling/>)<sup>1</sup>.

<sup>1</sup>Link opens new window.

### **Certificates in Counseling**

- Graduate Certificate in Child/Play Therapy (p. 73)
- Graduate Certificate in Clinical Mental Health Counselor to School Counselor (p. 73)
- Graduate Certificate in School Counselor to Clinical Mental Health Counselor (p. 74)

## **MEd in Counseling**

With a strong background in human growth and development, as well as communication skills, counselors assist clients in developing cognitive, emotional and behavioral strengths.

Wichita State University's Master of Education in counseling is designed to prepare students to meet the requirements of the Kansas State Department of Education (KSDE) for Licensed School Counselors and the Kansas Behavioral Sciences Regulatory Board (BSRB) for Licensed Professional Counselors. Upon completion of an MEd in counseling, students are able to provide counseling services in a wide range of settings, including PreK–12 schools, private practice settings, colleges/universities and community mental health agencies.

Visit the counseling program's website (<http://wichita.edu/counseling/>)<sup>1</sup>.

Contact us for more information: [cesp@wichita.edu](mailto:cesp@wichita.edu).

<sup>1</sup>Link opens new window.

### **Admission**

To be considered for admission to the MEd in counseling, applicants must meet the following requirements:

1. Have a 3.000 GPA overall,
2. Submit a statement of professional goals,
3. Submit a resume, and
4. Provide contact information for three people to serve as professional references.

Upon receipt of this information, the departmental screening committee will make recommendations concerning acceptance/rejection for the master's program in counseling.

### **Application Deadlines**

- For summer and fall semesters: May 1.
- For spring semester: November 1.

All applications must be complete. Candidates who apply are considered in the order in which their applications are completed until all openings are filled.

Visit the counseling program's website (<http://www.wichita.edu/counseling/>)<sup>1</sup>.

Contact us for more information: [cesp@wichita.edu](mailto:cesp@wichita.edu).

<sup>1</sup> Link opens new window.

**Program Requirements**

The MEd in counseling offers five different tracks depending upon the student's career goals. These tracks include **school counseling** (48 credit hours), **higher education counseling** (45 credit hours), **clinical mental health counseling** (60 credit hours), **addiction counseling** (60 credit hours) and **sports counseling** (60 credit hours).

**Background Check**

Upon admission and prior to their first semester, all applicants admitted to this program must clear a criminal background check. There are two reasons for this requirement. First, it is part of the university's due diligence before placing students in field settings. Second, the check may alert applicants or students to issues that may subsequently affect their ability to work in their chosen field. In instances when a person's criminal history raises reasonable concerns that should be cleared to engage in the field experiences and/or subsequently obtain licensure/endorsement, WSU may take a range of actions, including rescission of admission or dismissal from the program, depending on the nature of the concern.

For information regarding this requirement, visit the Advanced Programs webpage (<https://wichita.edu/clesadvancedprograms/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

**School Counseling Track (48 credit hours)**

Course	Title	Hours
CESP 803	Counseling Theory	3
CESP 804	Foundations of School Counseling	3
CESP 824	Techniques of Counseling <sup>2</sup>	3
CESP 821	Multicultural Issues <sup>3</sup>	3
CESP 856	School Counseling Practicum <sup>2</sup>	3
CLES 802	Theories of Human Development for Counseling Professionals	3
CESP 835	Psychopathology and the DSM	3
CESP 822	Assessment and Testing in Counseling <sup>3</sup>	3
CESP 815	Career Development <sup>3</sup>	3
CESP 857 or CLES 805	Professional and Ethical Issues in Counseling Professional and Ethical Issues in Clinical Mental Health Counseling	3
CESP 825	Group Counseling and Group Work <sup>2</sup>	3
CLES 810	Research and Program Evaluation for Counselors <sup>3</sup>	3
Select one of the following choices for a total of 6 credit hours <sup>2</sup>		6
CESP 949A & CESP 949B	School Counseling Internship I and School Counseling Internship II	
CESP 949C	School Counseling Internship	
<i>Electives</i>		
Select 6 credit hours of elective courses		6
<b>Total Credit Hours</b>		<b>48</b>

<sup>2</sup> The program requires a minimum grade of *B* in CESP 824, CESP 825 and CESP 856, and a satisfactory grade in CESP 949A, CESP 949B and CESP 949C.

<sup>3</sup> A grade of *B-* or higher in these courses is required by CACREP accreditation assessment.

**PK-12 School Counseling**

Individuals who already have a teaching license in Kansas can complete the school counseling degree track to become a licensed school counselor. Individuals without a teaching license are also eligible for licensure as a school counselor via the parallel pathway by completing the school counseling degree track and taking additional coursework (field experience hours included in two semesters of CESP 949 and one year of postdegree internship CESP 947).

Students interested in a thesis option would add 8 credit hours of coursework plus an oral examination of the thesis. The nonthesis option requires a written comprehensive exam.

**Higher Education Counseling Track**

Many graduates of the College of Applied Studies' counseling program may find employment in higher education settings for a variety of positions in student affairs such as admissions and student advisement by completing the higher education counseling track. Students who complete the higher education counseling track are eligible to apply to the EdD in educational leadership. Higher education track students who wish to pursue professional licensure as an LPC are encouraged to speak with their advisors and will need to take additional coursework.

**Higher Education/Student Affairs Track (45 credit hours)**

Course	Title	Hours
CLES 810	Research and Program Evaluation for Counselors	3
CESP 803	Counseling Theory	3
CESP 804	Foundations of School Counseling	3
CESP 824	Techniques of Counseling	3
CESP 821	Multicultural Issues	3
CLES 802	Theories of Human Development for Counseling Professionals	3
CESP 822	Assessment and Testing in Counseling	3
CESP 815	Career Development	3
CESP 825	Group Counseling and Group Work	3
CESP 835	Psychopathology and the DSM	3
CESP 857 or CLES 805	Professional and Ethical Issues in Counseling Professional and Ethical Issues in Clinical Mental Health Counseling	3
CLES 871	Foundations of Higher Education	3
CLES 873	College Student Development and the Campus Environment	3
CLES 875	Practicum in Higher Education	3
<b>Elective</b>		
Select 3 credit hours of electives from the following		3
CESP 811	Principles of Measurement and Program Evaluation	
SMGT 801	Management In Sport	
CLES 872	Finance and Human Resources in Colleges and Universities	

CLES 874	Legal and Ethical Issues in Higher Education	
Total Credit Hours		45

### Clinical Mental Health Counseling Track

Graduates of the MEd in counseling - clinical mental health counseling track may pursue careers in mental health counseling settings. The MEd in counseling - clinical mental health counseling track meets the basic core requirements for future licensure as a *Licensed Professional Counselor* in Kansas.

#### Clinical Mental Health Counseling Track (60 credit hours)

Course	Title	Hours
CESP 803	Counseling Theory	3
CLES 806	Foundations of Clinical Mental Health Counseling	3
CESP 824	Techniques of Counseling <sup>4</sup>	3
CESP 821	Multicultural Issues <sup>5</sup>	3
CLES 860	Clinical Mental Health Counseling Practicum <sup>4</sup>	3
CLES 802	Theories of Human Development for Counseling Professionals	3
CESP 835	Psychopathology and the DSM	3
CESP 822	Assessment and Testing in Counseling <sup>5</sup>	3
CESP 815	Career Development <sup>5</sup>	3
CLES 805	Professional and Ethical Issues in Clinical Mental Health Counseling	3
or CESP 857	Professional and Ethical Issues in Counseling	
CESP 825	Group Counseling and Group Work <sup>4</sup>	3
CLES 810	Research and Program Evaluation for Counselors <sup>5</sup>	3
CESP 838	Counseling Families in Crisis	3
CESP 848	Crisis Counseling	3
CESP 847	Addiction Counseling	3
Select one of the following choices for a total of 6 credit hours <sup>4</sup>		6
CLES 952A & CLES 952B	Clinical Mental Health Counseling Internship I and Clinical Mental Health Counseling Internship II	
CLES 952C	Clinical Mental Health Counseling Internship	
<i>Electives</i>		
Select 9 credit hours of elective courses		9
Total Credit Hours		60

<sup>4</sup> The program requires a minimum grade of *B* in CESP 824, CESP 825 and CLES 860, and a satisfactory grade in CLES 952A, CLES 952B and CLES 952C.

<sup>5</sup> A grade of *B-* or higher in these courses is required by CACREP accreditation assessment.

### Addiction Counseling Track

Course	Title	Hours
<b>Required Courses</b>		
CESP 803	Counseling Theory	3
CLES 806	Foundations of Clinical Mental Health Counseling	3
CESP 824	Techniques of Counseling <sup>4</sup>	3
CESP 821	Multicultural Issues <sup>5</sup>	3

CLES 802	Theories of Human Development for Counseling Professionals	3
CLES 862	Practicum in Addiction Counseling	3
CESP 835	Psychopathology and the DSM	3
CESP 822	Assessment and Testing in Counseling <sup>5</sup>	3
CESP 815	Career Development <sup>5</sup>	3
CLES 805	Professional and Ethical Issues in Clinical Mental Health Counseling	3
or CESP 857	Professional and Ethical Issues in Counseling	
CESP 825	Group Counseling and Group Work <sup>4</sup>	3
CLES 810	Research and Program Evaluation for Counselors <sup>5</sup>	3
CESP 838	Counseling Families in Crisis	3
CESP 848	Crisis Counseling	3
CESP 847	Addiction Counseling	3
Select one of the following choices for a total of 6 credit hours <sup>4</sup>		6
CLES 952A & CLES 952B	Clinical Mental Health Counseling Internship I and Clinical Mental Health Counseling Internship II	
CLES 952C	Clinical Mental Health Counseling Internship	
<i>Electives</i>		
Select 9 credit hours of elective courses		9
Total Credit Hours		60

### Sports Counseling Track

Graduates of the counseling athletes program track may find employment in higher education or other settings working with student athletes in a variety of advisement, mentoring or counseling positions in schools, student affairs or departments of athletics. The counseling track is designed to prepare students to meet the educational requirements for licensure as a professional counselor in the state of Kansas. For more information, visit the counseling athletes program webpage ([https://wichita.edu/academics/applied\\_studies/CLES/Programs/sports\\_counseling.php](https://wichita.edu/academics/applied_studies/CLES/Programs/sports_counseling.php))<sup>6</sup>.

#### Sports Counseling Track (60 credit hours)

Course	Title	Hours
CESP 803	Counseling Theory	3
CLES 802	Theories of Human Development for Counseling Professionals	3
CLES 805	Professional and Ethical Issues in Clinical Mental Health Counseling	3
CLES 806	Foundations of Clinical Mental Health Counseling	3
CLES 810	Research and Program Evaluation for Counselors	3
CLES 812	Counseling Student Athletes	3
CLES 813	Student Athlete Identity Development	3
CESP 815	Career Development	3
CESP 821	Multicultural Issues	3
CESP 822	Assessment and Testing in Counseling	3
CESP 824	Techniques of Counseling	3

CESP 825	Group Counseling and Group Work	3
CESP 835	Psychopathology and the DSM	3
CESP 847	Addiction Counseling	3
CLES 860	Clinical Mental Health Counseling Practicum	3
Select one of the following for a total of 6 credit hours		6
CLES 952A & CLES 952B	Clinical Mental Health Counseling Internship I and Clinical Mental Health Counseling Internship II	
CLES 952C	Clinical Mental Health Counseling Internship	
Complete 9 credit hours of elective courses related to sports counseling in HPS, SMTG, SCWK, CLES or CESP with advisor approval		9
Total Credit Hours		60

<sup>6</sup> Link opens new window.

**Applied Learning – All Tracks**

Students in all tracks of the MEd in counseling program are required to complete an applied learning or research experience to graduate from these programs.

- For students in the school counseling track, the requirement can be met with CESP 856 or CLES 860 plus an additional internship experience, CESP 949 .
- For students in the clinical mental health counseling track, the requirement can be met with CLES 860 plus an additional internship experience, CLES 952A, CLES 952B or CLES 952C .
- For students in the higher education track, the requirement can be met with CLES 875 .
- For students in the addiction counseling track, the requirement can be met with CLES 862.
- For students in the sports counseling track, the requirement can be met with CLES 860.

Visit the counseling program's website (<http://wichita.edu/counseling/>)<sup>7</sup>.

Contact us for more information: [cesp@wichita.edu](mailto:cesp@wichita.edu).

<sup>7</sup> Link opens new window.

**Certificate in Child/Play Therapy**

The counseling program in the department of counseling, educational leadership, educational and school psychology offers a postmaster’s certificate program in child/play therapy. The certificate program curriculum is designed to meet training standards for play therapists established by the Association of Play Therapy. This certificate program is not eligible for Title IV (federal financial aid) unless the certificate is awarded as part of a degree program.

**Admission Requirements**

1. Evidence of having completed a master’s degree in counseling, social work or a closely related field;
2. Cumulative graduate GPA: 3.250 in required courses for the prerequisite graduate degree;
3. Resume: the resume should include evidence of experience working in a professional counseling role;

4. Goal Statement: the goal statement must indicate an intention to work with young children as part of a future professional role; and
5. References: two professional references.

**Program Requirements**

**Background Check**

Upon admission and prior to their first semester, all applicants admitted to this program must clear a criminal background check. There are two reasons for this requirement. First, it is part of the university’s due diligence before placing students in field settings. Second, the check may alert applicants or students to issues that may subsequently affect their ability to work in their chosen field. In instances when a person’s criminal history raises reasonable concerns that should be cleared to engage in the field experiences and/or subsequently obtain licensure/ endorsement, WSU may take a range of actions, including rescission of admission or dismissal from the program, depending on the nature of the concern.

For information regarding this requirement, visit: Advanced Programs (<https://wichita.edu/clesadvancedprograms/>)<sup>1</sup>.

**Curriculum**

The certificate program comprises the following courses:

Course	Title	Hours
CESP 841	Fundamentals of Play Therapy	3
CESP 842	Play Therapy for Young Children	3
CESP 843	Child Psychopathology in Play Therapy	3
CESP 844	Advanced Techniques in Child and Play Therapy	3
CESP 865	Practicum Play Therapy <sup>2</sup>	3
Total Credit Hours		15

<sup>1</sup> Link opens new window.

<sup>2</sup> The practicum requires students to conduct 100 hours of play therapy while receiving weekly supervision from an experienced play therapist.

**Completion Requirements**

A cumulative graduate GPA of 3.000 for all courses comprising the certificate program is required. No grades below C (2.000) are allowed in certificate program courses. In addition to these requirements, students must meet the Graduate School’s requirements (p. 41) in order to earn this certificate.

Completion process:

1. Students must notify the program area, in writing, of intent to complete the certificate.
2. In the semester the certificate requirements are met students must:
  - a. With graduate advisor, prepare and submit to the Graduate School a plan of study for the certificate.
  - b. Submit to the Graduate School an application for the certificate along with the required filing fee.

Deadlines are no later than the 20th day of fall or spring semester, or the 10th day of a summer term.

**Certificate in Clinical Mental Health Counselor to School Counselor**

The Certificate in clinical mental health counselor to school counselor provides students in the 60-credit-hour clinical mental health counseling

(CMHC) track, former students who have graduated from the CMHC degree track, and Licensed Professional Counselor practitioners the opportunity to obtain the courses needed to meet the academic requirements for a school counselor license in Kansas. School counseling licensure will have the potential to provide additional career opportunities and promotion to the students who hold the certificate. Students with degrees less than 60 credit hours may be required to take additional courses beyond this certificate to meet the credit hours required for licensure by the Kansas State Department of Education licensing requirements for school counselors in Kansas.

### Admission

1. Evidence of having completed a master's degree in counseling;
2. Cumulative graduate GPA: 3.250 in required courses for the prerequisite graduate degree;
3. Completion of CESP 821, CESP 815, CESP 822 and CLES 810 or equivalents with a grade of *B-* or better;
4. Resume; and
5. References: two professional references.

Students seeking the clinical mental health counselor to school counselor licensure graduate certificate will be either currently enrolled students in the counseling program's clinical mental health counseling degree track, or nondegree, Category A status students who are returning to complete the school counselor licensure requirements. All Graduate School policies related to admission will apply to students admitted under nondegree Category A status to pursue the transition from clinical mental health counselor to school counselor graduate certificate.

### Program Requirements

The following courses are required for completion of this certificate:

Course	Title	Hours
<b>Required Courses</b>		
CESP 804	Foundations of School Counseling	3
CESP 856	School Counseling Practicum	3
CESP 949A & CESP 949B or CESP 949C	School Counseling Internship I and School Counseling Internship II <sup>1</sup> School Counseling Internship	6
Total Credit Hours		12

### Completion Requirements

A cumulative graduate GPA of 3.000 for all courses comprising the certificate program is required. No grades below a *C* (2.000) are allowed in certificate program courses. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

### Completion Process:

1. Students must notify the program area, in writing, of intent to complete the certificate.
2. In the semester the certificate requirements are met, students must:
  - a. With graduate advisor, prepare and submit to the Graduate School a plan of study for the certificate, and
  - b. Submit to the Graduate School an application for the certificate along with a \$25 filing fee.

Deadlines are no later than the 20th day of fall or spring semester, or the 10th day of a summer term.

## Certificate in School Counselor to Clinical Mental Health Counselor

The Certificate in school counselor to clinical mental health counselor (CMHC) provides students in the 48-credit-hour school counseling track and school counseling practitioners the opportunity to obtain the courses needed to meet the academic requirements of the Licensed Professional Counselor (LPC) license in Kansas. The certificate provides the coursework for students who are attending the 48-credit-hour school counseling degree track, WSU alumni who have graduated from the degree track and wish to return to WSU for the LPC educational requirements, or other school counselors who wish to pursue LPC coursework. LPC licensure will have the potential to provide additional career opportunities and promotion to the students who hold the certificate. Students with degrees less than 48 credit hours may be required to take additional courses beyond this certificate to meet the 60-credit-hours required for LPC licensure by the Kansas Behavioral Sciences Regulatory Board (BSRB). Students with a bachelor's degree who may have an interest in the counseling profession or practicing mental health professionals who may want professional development and/or an additional credential are also eligible for admission into this program.

### Admission

Students seeking the certificate in school counselor to clinical mental health counselor (CMHC) will be either currently enrolled students in the counseling program's school counseling degree track, or nondegree, Category A status students who wish to complete the LPC licensure requirements. All Graduate School policies related to admission will apply to students admitted under nondegree, Category A status to pursue the certificate in school counselor to clinical mental health counselor (CMHC).

Prior to admission, all students are strongly encouraged to confer with the BSRB regarding specific licensure requirements.

### Program Requirements

The following courses are required for completion of this 12-credit-hour certificate:

Course	Title	Hours
<b>Required Courses</b>		
CESP 847	Addiction Counseling	3
CESP 848	Crisis Counseling	3
CESP 838	Counseling Families in Crisis	3
<b>Electives</b>		
Select one 3-credit-hour elective chosen from the following preapproved list. Chosen elective depends on student interest.		3
CLES 750W	Psychopharmacology	
CLES 750M	Mindfulness and Acceptance in Therapy	
CESP 841	Fundamentals of Play Therapy	
CESP 844	Advanced Techniques in Child and Play Therapy	
CLES 813	Student Athlete Identity Development	
CLES 812	Counseling Student Athletes	
CLES 873	College Student Development and the Campus Environment	
SMGT 750N	Social Psychological Foundations of Sport	
SCWK 611Q	Social Work in Sports	

CLES 750AC	Theories of Suicidology for Counselors
CLES 860	Clinical Mental Health Counseling Practicum

Total Credit Hours 12

**Completion Requirements**

A cumulative graduate GPA of 3.000 for all courses comprising the certificate program is required. No grades below a C (2.000) are allowed in certificate program courses. In addition to these requirements, students must meet the Graduate School’s requirements (p. 41) in order to earn this certificate.

**Completion Process:**

1. Students must notify the program area, in writing, of intent to complete the certificate.
2. In the semester the certificate requirements are met, students must:
  - a. With graduate advisor, prepare and submit to the Graduate School a plan of study for the certificate, and
  - b. Submit to the Graduate School an application for the certificate along with a \$25 filing fee.

Deadlines are no later than the 20th day of fall or spring semester, or the 10th day of a summer term.

**Educational Leadership Programs in Educational Leadership**

The educational leadership program at Wichita State University offers:

- EdD in Educational Leadership (p. 75)
- EdD in Educational Leadership - Educational Psychology Track (p. 76)
- MEd in Educational Leadership (p. 77)

For additional information visit the College of Applied Studies' Educational Leadership webpage (<http://wichita.edu/edleadership/>)<sup>1</sup>.

<sup>1</sup>Link opens new window.

**Certificates in Educational Leadership**

- Graduate Certificate in Building-Level Leadership/Principal (p. 78)
- Graduate Certificate in Higher Education Leadership (p. 79)
- Graduate Certificate in Superintendency/District Leadership (p. 80)

**EdD in Educational Leadership**

The Doctor of Education in educational leadership is an innovative program premised on the belief that theory and practice must be combined in a hands-on learning environment that focuses on learning by doing. This degree program is intended for practicing professionals in K-12, higher education and other educational organizations who wish to further develop and enhance their leadership capacity. Rather than the typical lecture classroom, seminars are held in a setting where faculty and students meet as equals and share ideas and presentations.

**Admission**

Applicants must have a minimum grade point average of 3.500 on a 4.000 scale for all graduate-level credit hours. In addition, applicants must have validated strengths on the multiple indicators listed as follows:

1. Official transcripts of all college-level work completed, and indication of a degree conferral;
2. Evidence of three years of formal experience in P-12, higher education, educational organizations or other organizations (industry, not-for-profit) – Ed Leadership Track. (Not required for Ed Psychology Track.);
3. At least three letters of recommendation from supervisors and/or professional peers that attest to the applicant’s potential for success as an educational leader;
4. A current resume or curriculum vita of educational and professional experience;
5. A brief, one-page statement of professional goals related to the completion of the doctoral degree in educational leadership; and
6. A sample of academic writing (such as a published article or paper written for a graduate-level course).

Applications accepted until May 1 for summer admission (Ed Leadership track) and Aug. 1 for fall admission (Ed Psychology track). Late applications may be accepted at program discretion if space permits.

**Program Requirements**

Completion of the EdD in educational leadership requirements include 55 graduate credit hours (including a minimum of 15 dissertation hours), comprehensive examinations and an approved dissertation.

**Background Check**

Upon admission and prior to their first semester, all applicants admitted to this program must clear a criminal background check. There are two reasons for this requirement. First, it is part of the university’s due diligence before placing students in field settings. Second, the check may alert applicants or students to issues that may subsequently affect their ability to work in their chosen field. In instances when a person’s criminal history raises reasonable concerns that should be cleared to engage in the field experiences and/or subsequently obtain licensure/endorsement, WSU may take a range of actions, including rescission of admission or dismissal from the program, depending on the nature of the concern.

For information regarding this requirement, visit: Advanced Programs (<https://wichita.edu/clesadvancedprograms/>)<sup>1</sup>.

**Required Courses**

Course	Title	Hours
EL 968	Technology Orientation	1
EL 969	Introduction to Educational Research and Academic Writing	3
EL 970	Theoretical Research Perspectives and Applications for Educational Leadership	3
EL 981	Introduction to Field-Based Research	5
EL 971	Contemporary Policy and Organizational Theories in Education	3
EL 982	Introduction to Field-Based Research II	5
EL 984	Theoretical Frameworks for Organizational Analysis	3
EL 983	Research Proposal Development	3
EL 972	Leadership Theories Seminar	3

EL 986	Advanced Field-Based Research I	5
EL 987	Advanced Field-Based Research II	3
EL 989	Research Design	3
EL 999	Dissertation Research	3
EL 999	Dissertation Research	6
EL 999	Dissertation Research	6
Total Credit Hours		55

The five-member dissertation committee will include at least three university professors holding graduate faculty status (the chair must hold graduate faculty status), one member must be a practicing professional who must hold affiliate graduate faculty status, and an outside department university professor who also holds graduate faculty status who will serve as the graduate dean's representative. See Graduate Faculty (p. 17) for graduate faculty status definitions.

<sup>1</sup> Link opens new window.

### Applied Learning

Students in the educational leadership (EdD) program are required to complete an applied learning or research experience to graduate from this program. The requirement can be met by completing the dissertation.

## EdD in Educational Leadership - Educational Psychology Track

### Admission

Applicants must have a minimum grade point average of 3.500 on a 4.000 scale for all graduate-level credit hours. In addition, applicants must have validated strengths on the multiple indicators listed as follows:

1. Official transcripts of all college-level work completed, and indication of a graduate degree conferral in education, psychology or a closely related field;
2. At least three letters of recommendation from supervisors and/or professional peers that attest to the applicant's potential for success in a doctoral program and/or their chosen track;
3. A current resume or curriculum vita of educational and professional experience;
4. A brief, one-page statement of professional goals related to the completion of the doctoral degree in educational leadership — specifically their chosen track; and
5. A sample of academic writing (such as a published article or paper written for a graduate-level course).

Review of completed applications begins in the fall semester. Applications are accepted until August 1st for fall admission.

### Program Requirements

#### Background Check

Upon admission and prior to their first semester, all applicants admitted to this program must clear a criminal background check. There are two reasons for this requirement. First, it is part of the university's due diligence before placing students in field settings. Second, the check may alert applicants or students to issues that may subsequently affect their ability to work in their chosen field. In instances when a person's criminal history raises reasonable concerns that should be cleared to engage in the field experiences and/or subsequently obtain licensure/endorsement, WSU may take a range of actions, including rescission of

admission or dismissal from the program, depending on the nature of the concern.

For information regarding this requirement, visit: Advanced Programs (<https://wichita.edu/clesadvancedprograms/>)<sup>1</sup>.

### Educational Leadership – Educational Psychology Track Curriculum (55 credit hours)

Course	Title	Hours
<b>Core Courses (28 credit hours) and Dissertation (15 credit hours)</b>		
CLES 901	Proseminar I	3
CLES 902	Psychology of Leadership, Persuasion and Influence	3
CLES 903	Beliefs About Knowledge and Learning	3
CLES 904	Psychology of Language and Discourse Processes	3
CLES 905	Research Methods and Analysis: Quantitative	3
CLES 906	Research Methods and Analysis: Naturalistic	3
CLES 907	Cognition and Instruction	3
CLES 908	Proseminar II	5
EL 990	Special Problems in Administration	2
CLES 909	Dissertation	5
CLES 909	Dissertation	5
CLES 909	Dissertation	5
<b>Electives (12 credit hours)</b>		
Advanced courses may be taken from the following programs with the consent of an academic advisor and an approved plan of study.		12
Educational Leadership		
Counseling		
School Psychology		
Communication Science and Disorders		
Psychology		
Sport Management		
Sociology		
Curriculum and Instruction		
Business		
Engineering		
Fine Arts		
Total Credit Hours		55

### Example Course Sequence with Higher Education Leadership Emphasis

First Year		
Summer Semester		Credit Hours
CLES 873	College Student Development and the Campus Environment (Elective)	3
CLES 874	Legal and Ethical Issues in Higher Education (Elective)	3
EL 990	Special Problems in Administration	2
Credit Hours		8
Fall Semester		
CLES 901	Proseminar I	3
CLES 902	Psychology of Leadership, Persuasion and Influence	3
CLES 871	Foundations of Higher Education (Elective)	3
Credit Hours		9
Spring Semester		
CLES 904	Psychology of Language and Discourse Processes	3
CLES 903	Beliefs About Knowledge and Learning	3

CLES 872	Finance and Human Resources in Colleges and Universities (Elective)	3
	Credit Hours	9
<b>Second Year</b>		
<b>Summer Semester</b>		
CLES 909	Dissertation	5
	Credit Hours	5
<b>Fall Semester</b>		
CLES 905	Research Methods and Analysis: Quantitative	3
CLES 906	Research Methods and Analysis: Naturalistic	3
CLES 907	Cognition and Instruction	3
	Credit Hours	9
<b>Spring Semester</b>		
CLES 908	Proseminar II	5
	Credit Hours	5
<b>Third Year</b>		
<b>Fall Semester</b>		
CLES 909	Dissertation	5
	Credit Hours	5
<b>Spring Semester</b>		
CLES 909	Dissertation	5
	Credit Hours	5
	Total Credit Hours	55

<sup>1</sup> Link opens new window.

**Applied Learning**

Students in the educational leadership (EdD) program are required to complete an applied learning or research experience to graduate from this program. The requirement can be met by completing the dissertation.

**MEd in Educational Leadership**

WSU’s innovative master’s degree in educational leadership is designed using cohort groups. Students begin the program with a cohort who becomes a collaborative team for the next two years. The combination of graduate coursework and guided practical application provides students with valuable opportunities to learn through experience what it is to demonstrate excellence as a building level leader. Students work with their mentors (usually their building principals) in assessing their strengths and identifying areas for growth as an administrator, and identifying strengths and potential for improvement in their schools. Throughout the program, students learn to capitalize on these strengths and address professional challenges with confidence.

Students who complete this program and pass the School Leaders Licensure Assessment are eligible for Building Leadership endorsement from KSDE.

**Admission**

Applicants must have a minimum 3.000 grade point average in their last two years (60 credit hours) of college coursework from accredited institutions. In addition, applicants must have validated strengths on the multiple indicators listed below.

1. Official transcripts of all college-level work completed, and indication of a degree conferral;
2. Three Reference Report Forms from supervisors and/or professional peers. At least one must be from a supervisor attesting to the applicant’s potential as a building administrator;

3. Evidence of three years of experience in a state-accredited school while holding a professional level teaching, school specialist or clinical license, or a full vocational-technical certificate;
4. A resume or curriculum vita of educational and professional experience;
5. A brief statement of professional goals related to completion of the master’s degree and/or certification as a school administrator; and
6. A letter signed by a building principal indicating he or she is willing to serve as the student’s mentor and will allow the student to fulfill the practicum requirements of the program.

*Note:* Requirement six above normally precludes the admission of international students from this program because applicants are usually employed by a Kansas K–12 public or private school district before being admitted.

**Program Requirements**  
**Background Check**

Upon admission and prior to their first semester, all applicants admitted to this program must clear a criminal background check. There are two reasons for this requirement. First, it is part of the university’s due diligence before placing students in field settings. Second, the check may alert applicants or students to issues that may subsequently affect their ability to work in their chosen field. In instances when a person’s criminal history raises reasonable concerns that should be cleared to engage in the field experiences and/or subsequently obtain licensure/endorsement, WSU may take a range of actions, including rescission of admission or dismissal from the program, depending on the nature of the concern.

For information regarding this requirement, visit: Advanced Programs (<https://wichita.edu/clesadvancedprograms/>)<sup>1</sup>.

**Curriculum**

The Master of Education (MEd) in educational leadership consists of 33 graduate credit hours including:

Course	Title	Hours
CLES 801	Introduction to Educational Research	3
EL 813	Introduction to Educational Leadership and School Finance	3
EL 815	Building-Level Leadership Practicum I	3
EL 823	Changing the Culture in an Environment of Collaboration and Partnership	3
EL 825	Building-Level Leadership Practicum II	3
EL 831	Diversity and Social Justice	3
EL 833	Seminar: School Law and Personnel Management	3
EL 835	Building-Level Leadership Practicum III	3
EL 843	Seminar: Curriculum and Learning Theory	3
EL 845	Building-Level Leadership Practicum IV	3
EL 853	Building Level Leadership for Special Populations	3
Total Credit Hours		33

Students pursuing licensure as building leaders must complete this program in its entirety. A comprehensive written examination is

required. In addition to program completion, passing the state of Kansas required Praxis II Test (test code 6011) is a requirement for state licensure.

### Sequence of Courses

First Year		Credit Hours
Fall Semester		
EL 813	Introduction to Educational Leadership and School Finance	3
EL 815	Building-Level Leadership Practicum I	3
Credit Hours		6
Spring Semester		
EL 833	Seminar: School Law and Personnel Management (1st eight weeks)	3
EL 853	Building Level Leadership for Special Populations (2nd eight weeks)	3
EL 825	Building-Level Leadership Practicum II	3
Credit Hours		9
Second Year		
Summer Semester		
CLES 801	Introduction to Educational Research <sup>2</sup>	3
Credit Hours		3
Fall Semester		
EL 843	Seminar: Curriculum and Learning Theory (1st eight weeks)	3
EL 831	Diversity and Social Justice (2nd eight weeks)	3
EL 835	Building-Level Leadership Practicum III	3
Credit Hours		9
Spring Semester		
EL 823	Changing the Culture in an Environment of Collaboration and Partnership	3
EL 845	Building-Level Leadership Practicum IV	3
Credit Hours		6
Total Credit Hours		33

<sup>1</sup> Link opens new window.

<sup>2</sup> CLES 801 can be taken any summer or online in any semester prior to fall 2.

### Applied Learning

Students in the MEd program in educational leadership leading to building-level licensure are required to complete an applied learning or research experience to graduate from this program. The requirement can be met by completing two practicum experiences, EL 815 and EL 825.

## Certificate in Building Level Leadership/Principal

The educational leadership program in the department of counseling, educational leadership, educational and school psychology offers the building-level leadership graduate certificate program. Its goal is to provide a path for students who currently have a master's degree in an education-related field (e.g. curriculum and instruction, school counseling, etc.) and are currently employed in preK–12 education to be recommended for building licensure.

### Admission

Applicants must have a minimum 3.000 grade point average in their last two years (60 credit hours) of college coursework from accredited institutions. In addition, applicants must have validated strengths on the multiple indicators listed below:

1. Official transcripts of all college-level work completed with indication of having completed a master's degree in an education-related field (e.g. curriculum and instruction, school counseling);
2. Three completed reference report forms from supervisors and/or professional peers. At least one must be from a supervisor attesting to the applicant's potential as a building administrator;
3. Evidence of five years of experience in a state-accredited school while holding a professional level teaching, school specialist or clinical license or a full vocational-technical certificate.
4. A resume or curriculum vita of educational and professional experience;
5. A brief statement of professional goals related to completion of the certificate program and/or certification as a school administrator; and
6. A letter signed by a building principal indicating he or she is willing to serve as the student's mentor and will allow the student to fulfill the practicum requirements in the program. (*Note: this requirement normally precludes the admission of international students from this program because applicants are usually employed by a K–12 public or private school district before being admitted.*)

### Program Requirements

#### Background Check

Upon admission and prior to their first semester, all applicants admitted to this program must clear a criminal background check. There are two reasons for this requirement. First, it is part of the university's due diligence before placing students in field settings. Second, the check may alert applicants or students to issues that may subsequently affect their ability to work in their chosen field. In instances when a person's criminal history raises reasonable concerns that should be cleared to engage in the field experiences and/or subsequently obtain licensure/endorsement, WSU may take a range of actions, including rescission of admission or dismissal from the program, depending on the nature of the concern.

For information regarding this requirement, visit: Advanced Programs (<https://wichita.edu/clesadvancedprograms/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

#### Curriculum

The certificate program requires 15–21 credit hours of coursework comprising the following:

Course	Title	Hours
EL 813	Introduction to Educational Leadership and School Finance	3
EL 815	Building-Level Leadership Practicum I <sup>1</sup>	3
EL 825	Building-Level Leadership Practicum II <sup>1</sup>	3
EL 831	Diversity and Social Justice <sup>2</sup>	3
EL 833	Seminar: School Law and Personnel Management	3
EL 853	Building Level Leadership for Special Populations	3
CLES 801	Introduction to Educational Research <sup>2</sup>	3
Total Credit Hours		21

<sup>1</sup> For students earning licensure only, substitute EL 816 and EL 846 respectively.

<sup>2</sup> Applicants who have prior coursework in multicultural or diversity training and research can have these courses evaluated and potentially waived, resulting in a program of 15 credit hours.

**Sequence of Courses**

First Year		Credit Hours
Fall Semester		
EL 813	Introduction to Educational Leadership and School Finance	3
EL 815	Building-Level Leadership Practicum I <sup>1</sup>	3
Credit Hours		6
Spring Semester		Credit Hours
EL 833	Seminar: School Law and Personnel Management (1st eight weeks)	
EL 853	Building Level Leadership for Special Populations (2nd eight weeks)	3
EL 825	Building-Level Leadership Practicum II <sup>1</sup>	3
Credit Hours		9
Second Year		Credit Hours
Summer Semester		
CLES 801	Introduction to Educational Research <sup>2</sup>	3
EL 831	Diversity and Social Justice <sup>2</sup>	3
Credit Hours		6
Total Credit Hours		21

<sup>1</sup> For students earning licensure only, substitute EL 816 and EL 846 respectively.

<sup>2</sup> CLES 801 and EL 831 can be waived with evidence of prior credit, or taken online, or in the summer of either the first or second year of the program.

**Completion Requirements**

Students completing the requirements for a graduate certificate must submit the Graduate Plan of Study form and the Application for Graduate Certificate form no later than the 20th day of the fall or spring semester, or the 10th day of the eight-week summer term when certificate completion is anticipated. A cumulative GPA of 3.000 for all courses comprising the certificate program and on the student's approved plan of study is required. No grades below C (2.000) are allowed in certificate program courses. In addition, candidates must pass all key program assessments. Complete information on these assessments is available from the program advisor.

In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

**Certificate in Higher Education Leadership**

The graduate certificate program in higher education leadership is designed to prepare current and prospective college or university staff members for entry to mid-level positions as administrators in two- and four-year colleges and universities; policy makers and student affairs professionals in higher education; and to provide selected coursework/degrees for individuals currently in the field. Graduates of the program are prepared to function effectively in a variety of leadership positions at two- and four-year institutions of higher education. In addition, this program enables working professionals in higher education to increase their skills, knowledge and abilities to compete for professional positions of increasing responsibility and scope.

This graduate certificate can be earned in conjunction with an existing master's degree program or taken for postbachelor's or postmaster's

degree credit. Students who complete the postbachelor's graduate certificate are eligible to apply for a higher education or counseling master's degree program in CLES. Students who complete the postmaster's graduate certificate are eligible to apply for the EdD in educational leadership.

This certificate program is not eligible for Title IV (federal financial aid) funding unless the certificate is awarded as part of a degree program. Certificate programs which are not eligible for Title IV aid are not gainful employment programs.

**Admission**

1. Students seeking admission must have a minimum of a bachelor's degree by the time of enrollment with a GPA of 3.000 or higher;
2. Two letters of recommendation;
3. Letter of intent indicating reasons for pursuing certificate; and
4. Resume.

**Program Requirements**

**Background Check**

Upon admission and prior to their first semester, all applicants admitted to this program must clear a criminal background check. There are two reasons for this requirement. First, it is part of the university's due diligence before placing students in field settings. Second, the check may alert applicants or students to issues that may subsequently affect their ability to work in their chosen field. In instances when a person's criminal history raises reasonable concerns that should be cleared to engage in the field experiences and/or subsequently obtain licensure/endorsement, WSU may take a range of actions, including rescission of admission or dismissal from the program, depending on the nature of the concern.

For information regarding this requirement, visit: Advanced Programs (<https://wichita.edu/clesadvancedprograms/>)<sup>1</sup>.

**Curriculum**

Fifteen (15) credit hours from the following courses are required for completion of this certificate:

Course	Title	Hours
Select five of the following:		15
CLES 871	Foundations of Higher Education (fall)	
CLES 872	Finance and Human Resources in Colleges and Universities (fall)	
CLES 873	College Student Development and the Campus Environment (fall)	
CLES 874	Legal and Ethical Issues in Higher Education (spring)	
CLES 875	Practicum in Higher Education (spring and summer)	
CESP 811	Principles of Measurement and Program Evaluation (fall and spring)	
SMGT 801	Management In Sport	
CLES 876	Social Justice Issues in Higher Education (spring and summer)	
Total Credit Hours		15

In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

For more information, visit the certificate in higher education leadership webpage ([https://www.wichita.edu/academics/applied\\_studies/CLES/Programs/Higher\\_Ed\\_Leadership\\_Cert.php](https://www.wichita.edu/academics/applied_studies/CLES/Programs/Higher_Ed_Leadership_Cert.php))<sup>1</sup>.

<sup>1</sup> Link opens new window.

## Certificate in Superintendency/District Leadership

The superintendency/district leadership graduate certificate program provides an opportunity for potential candidates who currently hold a Kansas professional building leadership license to participate in advanced graduate training that leads to positions as a superintendent, assistant superintendent or special education director, as well as other district-level positions required by school districts. The program is completed entirely online.

This program is not cohort-based and provides great flexibility in time and with instructional options. It can be completed in one year or over a longer period. Although most candidates begin their program in June, candidates may begin their classes at any time throughout the year (June, August, October, January, March). However, Graduate School admissions deadlines must still be met.

### Admission

- Application to the Graduate School (<http://wichita.edu/gradschool/>)<sup>1</sup>. Graduate School admissions deadlines must be met.
- Three recommendations from supervisors and/or professional peers of which at least one must be from a supervisor that attests to the applicant's potential as a district-level leader.
- Evidence of a professional license in school building leadership.
- A 500-word statement that discusses the applicant's leadership experience (formal/informal; professional/nonprofessional). The applicant must be specific as to his/her leadership experience detailing the goals and outcomes of the applicant's leadership experience. The statement of purpose will be analyzed for evidence of leadership ability and writing skill.

<sup>1</sup> Link opens new window.

### Program Requirements

#### Background Check

Upon admission and prior to their first semester, all applicants admitted to this program must clear a criminal background check. There are two reasons for this requirement. First, it is part of the university's due diligence before placing students in field settings. Second, the check may alert applicants or students to issues that may subsequently affect their ability to work in their chosen field. In instances when a person's criminal history raises reasonable concerns that should be cleared to engage in the field experiences and/or subsequently obtain licensure/endorsement, WSU may take a range of actions, including rescission of admission or dismissal from the program, depending on the nature of the concern.

For information regarding this requirement, visit: Advanced Programs (<https://wichita.edu/clesadvancedprograms/>)<sup>1</sup>.

#### Curriculum

The district program requires 15–21 credit hours<sup>2</sup>.

Course	Title	Hours
EL 884	Leadership in Vision, Collaboration and Planning	3
EL 953	Financial Support of Education	3

EL 956	Human Services Leadership	3
EL 963	Policy and Politics in Educational Leadership	3
EL 964	Administration and Supervision of Special Education	3
EL 992	Superintendency/Internship <sup>2</sup>	6
Total Credit Hours		21

### Course Sequence

First Year		
Summer Semester		Credit Hours
EL 953	Financial Support of Education	3
Credit Hours		3
Fall Semester		
EL 884	Leadership in Vision, Collaboration and Planning	3
EL 956	Human Services Leadership	3
EL 992	Superintendency/Internship <sup>2</sup>	3
Credit Hours		9
Spring Semester		
EL 963	Policy and Politics in Educational Leadership	3
EL 964	Administration and Supervision of Special Education	3
EL 992	Superintendency/Internship <sup>2</sup>	3
Credit Hours		9
Total Credit Hours		21

<sup>1</sup> Link opens new window.

<sup>2</sup> Applicants who have prior coursework/experience may have their coursework/experience evaluated and may have their internship or other course requirements waived, resulting in a program of 15–18 credit hours.

### Additional Requirements

In addition to the prescribed coursework of five seminars and a year-long internship working with a practicing professional, candidates must take and submit a passing score on the School Superintendent Assessment (SSA). The SSA is based on standards adopted by the Kansas State Department of Education which include knowledge, performance and dispositions necessary for a district-level school leadership position.

Once a candidate successfully completes all coursework and program requirements, the licensure office at Wichita State will assist the candidate with their request for licensure. Past coursework/experiences can possibly reduce the number of courses required to complete the program.

In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

## Educational Psychology Programs in Educational Psychology

The educational psychology program at Wichita State University offers:

- MEd in Educational Psychology (p. 81)

The EdD - educational leadership program offers a track in educational psychology:

- EdD in Educational Leadership - Educational Psychology Track (p. 76)

For further information visit the College of Applied Studies' educational psychology webpage (<http://wichita.edu/edpsych/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

**Certificates in Educational Psychology**

- Certificate in Engineering Education (p. 83)

**MEd in Educational Psychology**

The master's in educational psychology (MEd) has wide applicability. This degree can be obtained in its generalized track, in the form of a customizable specialization, or in the Higher Education Student Affairs (HESA) nonthesis track. The customizable specialization allows students to collaborate with their academic advisor to determine electives that meet the student's needs and interests with emphasis on specific skills and knowledge.

The following customizable specializations are among the options available:

- Learning and Memory;
- Behavioral Management and Motivation;
- Diversity and Advocacy;
- Program Evaluation;
- Professional Development;
- Institutional and Industrial Consultation;
- Social Psychology and Leadership Skills;
- School Psychology Foundations - for those who wish to pursue a career in school psychology; and
- Doctoral Foundations - prepares students to move on to a doctoral program.

**Admission**

To be considered for admission to the MEd in educational psychology, students must provide:

- Their grade point average (GPA);
- Evidence of academic competence;
- A resume;
- Names, addresses and phone numbers of three people to provide letters of reference;
- A statement of professional goals; and
- A statement of research interests.

Evidence of academic competence can be provided in one of the following ways:

- GPA of 3.000 or higher in all coursework;
- Graduate Record Examination (GRE) scores of at least 150 for each GRE subsection (verbal and quantitative) and a GRE writing assessment score of 4.0 or higher; or
- Miller Analogies Test equal to the national mean score at the time of taking the exam (400).

Applications for admission to the MEd in educational psychology program are reviewed throughout the year as they become completed. Candidates who apply are considered in the order in which their applications are completed until all openings are filled.

Apply online at the WSU application portal (<https://apply.wichita.edu/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

**Program Requirements**

The master's in educational psychology (MEd) has wide applicability and can be obtained in three ways:

1. MEd in educational psychology general track;
2. MEd in educational psychology with customizable specializations; or
3. MEd in educational psychology - higher education/student affairs track (30-credit-hour nonthesis).

**Background Check**

Upon admission and prior to their first semester, all applicants admitted to this program must clear a criminal background check. There are two reasons for this requirement. First, it is part of the university's due diligence before placing students in field settings. Second, the check may alert applicants or students to issues that may subsequently affect their ability to work in their chosen field. In instances when a person's criminal history raises reasonable concerns that should be cleared to engage in the field experiences and/or subsequently obtain licensure/endorsement, WSU may take a range of actions, including rescission of admission or dismissal from the program, depending on the nature of the concern.

For information regarding this requirement, visit: Advanced Programs (<https://wichita.edu/clesadvancedprograms/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

**1. MEd in Educational Psychology General Track - Program Requirements**

The MEd in educational psychology may be earned as a thesis or nonthesis option.

**Educational Psychology Courses (32-credit-hour thesis option)**

The thesis option requires 32 credit hours of coursework plus an oral examination over the thesis.

Course	Title	Hours
CESP 704	Introduction to Educational Statistics	3
CESP 728	Theories of Human Development	3
CLES 801	Introduction to Educational Research	3
CESP 820	Learning Theory and Instruction	3
CESP 823	Experimental Design in Educational Research	3
CESP 831	Social Psychology for Educational and Helping Professions	3
CESP 860	Seminar in Research Problems	1
CESP 875	Master's Thesis	2
CESP 876	Master's Thesis	2
Electives - select an additional 9 credit hours of elective coursework		9
Total Credit Hours		32

**Educational Psychology Courses (33-credit-hour nonthesis option)**

The nonthesis option requires 33 credit hours of coursework and a written comprehensive examination.

Course	Title	Hours
CESP 704	Introduction to Educational Statistics	3

CESP 728	Theories of Human Development	3
CLES 801	Introduction to Educational Research	3
CESP 820	Learning Theory and Instruction	3
CESP 823	Experimental Design in Educational Research	3
CESP 831	Social Psychology for Educational and Helping Professions	3
Electives - select an additional 15 credit hours of elective coursework		15
Total Credit Hours		33

## 2. MEd in Educational Psychology with Customizable Specializations

The customizable specializations allow students to collaborate with their academic advisor to determine electives that meet the student's needs and interests with emphasis on specific skills and knowledge.

The following specializations are among the options available:

- Learning and Memory
- Behavioral Management and Motivation
- Diversity and Advocacy
- Program Evaluation
- Professional Development
- Institutional and Industrial Consultation
- Social Psychology and Leadership Skills
- School Psychology Foundations - for those who wish to pursue a career in school psychology
- Doctoral Foundations - prepares students to move on to a doctoral program

Course	Title	Hours
<b>Required Courses</b>		
CESP 704	Introduction to Educational Statistics	3
CESP 728	Theories of Human Development	3
CLES 801	Introduction to Educational Research	3
CESP 820	Learning Theory and Instruction	3
CESP 823	Experimental Design in Educational Research	3
CESP 831	Social Psychology for Educational and Helping Professions	3
<b>Electives</b>		
Elective Credits - with the guidance of an academic advisor, select 15 credit hours of additional elective coursework. Includes 700- and 800-level courses in one or more related disciplines. Some potential disciplines include educational psychology, counseling, school psychology, curriculum and instruction, communication science and disorders, aging studies, and psychology.		15
Total Credit Hours		33

### Sample Customizable Track Diversity and Advocacy

Course	Title	Hours
CESP 704	Introduction to Educational Statistics	3
CESP 728	Theories of Human Development	3

CLES 801	Introduction to Educational Research	3
CESP 820	Learning Theory and Instruction	3
CESP 823	Experimental Design in Educational Research	3
CESP 831	Social Psychology for Educational and Helping Professions	3
<b>Electives</b>		<b>15</b>
CESP 803	Counseling Theory	
CESP 821	Multicultural Issues	
CI 711	Multicultural Education	
CESP 838	Counseling Families in Crisis	
CESP 852	Special Studies	
Total Credit Hours		33

## 3. Educational Psychology MEd - Higher Education/Student Affairs Track Requirements

The MEd in educational psychology track in higher education/student affairs does not require a thesis and requires 30 credit hours of coursework. The total program credit hours is 30, however students can get an emphasis in the program which would raise the credit hours to 36. *It is not a requirement, but rather offers students the option to customize their program.*

### Course Sequence for the HESA Program

First Year		Credit Hours
<b>Fall Semester</b>		
CLES 871	Foundations of Higher Education	3
CLES 873	College Student Development and the Campus Environment	3
CLES 801	Introduction to Educational Research	3
Credit Hours		9
<b>Spring Semester</b>		
CLES 878	Foundations of Student Affairs	2
CESP 811	Principles of Measurement and Program Evaluation	3
Credit Hours		5
<b>Second Year</b>		
<b>Summer Semester</b>		
CLES 875	Practicum in Higher Education	3
Credit Hours		3
<b>Fall Semester</b>		
CESP 824	Techniques of Counseling	3
CLES 872	Finance and Human Resources in Colleges and Universities	3
Credit Hours		6
<b>Spring Semester</b>		
CLES 874	Legal and Ethical Issues in Higher Education <sup>1</sup>	2
CLES 876	Social Justice Issues in Higher Education	3
CLES 877	Capstone: Current Issues in Higher Education and Student Affairs	2
Credit Hours		7
Total Credit Hours		30

<sup>1</sup> Students in the HESA program must take CLES 874 Legal and Ethical Issues in Higher Education for (2) credit hours.

**HESA Customizable Track**  
**Student Affairs Practitioner Wellness and Effectiveness**

Students would need to take these additional courses in addition to the required courses for the HESA program to be able to receive this emphasis.

First Year		Credit Hours
Summer Semester		
CLES 880	Practitioner Wellness and Effectiveness	3
Credit Hours		3
Spring Semester		
CLES 882	Crisis Management and Prevention in Higher Education	3
Credit Hours		3
Total Credit Hours		6

**Administration and Leadership**

Students would need to take these additional courses in addition to the required courses for the HESA program to be able to receive this emphasis.

First Year		Credit Hours
Spring Semester		
CLES 879	Administration and Governance in Higher Education	3
Credit Hours		3
Second Year		
Fall Semester		
CLES 881	Leadership in Higher Education	3
Credit Hours		3
Total Credit Hours		6

**Applied Learning**

Students in the educational psychology (MEd) program are required to complete an applied learning or research experience to graduate from this program. The requirement for all students, with the exception of students in the higher education/student affairs track, can be met by conducting a case study research in CESP 728. The case study is guided and supervised by the educational psychology faculty and provides students with the opportunity to observe, assess and interact with a child/adolescent and the child's family in the real world. Students in the higher education/student affairs track are required to complete a practicum, CLES 875.

**Certificate in Engineering Education**

The College of Applied Studies, in conjunction with the College of Engineering, offers the graduate certificate in engineering education. The graduate certificate in engineering education is designed to:

1. Provide engineering graduate students with knowledge of contemporary learning theories that can be applied to university-level instruction;
2. Provide engineering graduate students with knowledge and skills in classroom testing and program evaluation;
3. Provide engineering graduate students with knowledge of pedagogical skills that can be applied to university-level instruction;
4. Provide engineering graduate students with the skills to apply knowledge of learning theory, pedagogical theory and measurement theory in an authentic university setting.

This certificate program provides joint mentorship from College of Applied Studies and College of Engineering faculty members. Students

who plan to apply for university teaching positions after graduation need to be competitive in a market that demands good teaching as well as good research. The engineering education certificate will give WSU graduates a competitive edge.

**Admission**

Students seeking this graduate certificate program must be Wichita State University engineering graduate students in good standing either in a degree-bound program or in nondegree, Category A status. Students should contact the Graduate School to determine if they need to apply for admission to this status or need to reactivate their enrollment file. Students who have not completed graduate coursework at Wichita State University will need to apply for admission to degree status or nondegree, Category A status in an appropriate area of engineering by submitting an application and application fee to the Graduate School. An official transcript from each school attended must be sent directly to the Graduate School from the institution issuing the transcript or must be submitted to the Graduate School office in envelopes sealed by the issuing institution, if issued to student.

**Program Requirements**

**Background Check**

Upon admission and prior to their first semester, all applicants admitted to this program must clear a criminal background check. There are two reasons for this requirement. First, it is part of the university's due diligence before placing students in field settings. Second, the check may alert applicants or students to issues that may subsequently affect their ability to work in their chosen field. In instances when a person's criminal history raises reasonable concerns that should be cleared to engage in the field experiences and/or subsequently obtain licensure/endorsement, WSU may take a range of actions, including rescission of admission or dismissal from the program, depending on the nature of the concern.

For information regarding this requirement, visit: Advanced Programs (<https://wichita.edu/clesadvancedprograms/>)<sup>1</sup>.

**Curriculum**

The following courses are required for completion of this certificate:

Course	Title	Hours
CESP 820	Learning Theory and Instruction (spring)	3
CESP 811	Principles of Measurement and Program Evaluation (spring)	3
CI 816	Advanced Methods: Developing Critical and Creative Thought (spring)	3
CI 816A	Internship: Developing Critical and Creative Thought (fall)	3
Total Credit Hours		12

**Completion Requirements**

A cumulative graduate GPA of 3.000 for all courses comprising the certificate program is required. No grades below C (2.000) are allowed in certificate program courses. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

Completion process:

1. Students must notify the program area, in writing, of intent to complete the certificate.
2. In the semester the certificate requirements are met students must:

- a. With graduate advisor, prepare and submit to the Graduate School a plan of study for the certificate.
- b. Submit to the Graduate School an application for the certificate along with the required filing fee.

Deadlines are no later than the 20th day of fall or spring semester, or the 10th day of a summer term.

<sup>1</sup> Link opens new window.

## School Psychology

### Programs in School Psychology

The College of Applied Studies at Wichita State University offers:

- Education Specialist in Education (EdS) in School Psychology - postbaccalaureate program (p. 84)
- Education Specialist (EdS) in School Psychology - postmaster's program (p. 85)

For more information, please visit the College of Applied Studies' school psychology webpage (<http://wichita.edu/schoolpsych/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

### Certificates in School Psychology

- Certificate in Applied Behavior Analysis (ABA) (p. 87)

## EdS in School Psychology - Postbaccalaureate

This program leads to the Specialist in Education (EdS) degree in school psychology. School psychologists collaborate with educators and families to help ensure the academic, social, behavioral and emotional progress of children and youth in schools.

As school practitioners, school psychologists share their consultation, assessment, intervention and research expertise with youth, families and educators to promote healthy cognitive, social and emotional development.

The School Psychology Educational Specialist in Education (EdS) consists of 60 graduate credit hours if entering after obtaining an undergraduate degree or 39 graduate credit hours if entering with an earned master's in a related area.

### Benefits

- Excellent job prospects upon graduation: For the past several years, all graduates of WSU's school psychology program have become employed upon graduation.
- Entry into a satisfying career: In 2016, US News and World Report ranked school psychology as #2 in social services jobs and #57 in the 100 Best Jobs.
- Dual programming: Program graduates will have earned the EdS degree in school psychology and will be eligible for certification/licensure as a school psychologist.
- Nationally-approved program: The EdS program is approved by the National Association of School Psychologists (NASP).
- State-approved program: The Kansas State Department of Education has approved WSU's school psychology program.
- Flexible programming:
  - Courses are offered in the late afternoons and evenings so students can work full time while completing the degree. Some courses are offered in online/hybrid formats and summer courses are available.

- Students can enter the 60-credit-hour program after obtaining an undergraduate degree and can move through the program in two years going full time, or students may choose to attend part time.
- Students with an earned master's in a related field can enter the 39-credit-hour program and go full time or part time.

### Admission

Applications for admission to the postbaccalaureate EdS in school psychology are due March 15 for summer or fall admission and October 15 for spring admission. Late applications will be reviewed if space permits.

In addition to standard Graduate School requirements, applicants must have a 3.000 GPA and submit the following:

1. Evidence of academic competence.
 

The GRE is not required depending on the applicant's *evidence of academic competence*. Evidence of academic competence can be provided in one of the following ways:

  - a. GPA of 3.000 or higher in all undergraduate work; or
  - b. Graduate Record Examination (GRE) scores of 150 or higher for each GRE subsection (Verbal and Quantitative), and a GRE score of 4.0 or higher for the Analytical Writing subtest; or
  - c. A score on the Miller Analogies Test equal to the national mean at the time of taking the test (400).
2. References — contact information for three (3) persons from whom we may request letters of reference. The individuals must know the applicant professionally or academically and have some basis for commenting on his or her probable success as a school psychologist.
3. Resume.
4. Goal statement — a one-page statement of the applicant's professional goals.
5. Writing assessment — all applicants will take a writing assessment that will be scored according to a rubric. If the writing sample does not meet the criteria of the rubric, applicants can be accepted provisionally, contingent upon taking a noncredit course to improve the applicant's writing skills: ENGL 011 (or the equivalent). After taking the course, applicants will be required to retake and pass the writing assessment.
6. Interview — an interview with faculty is required of all applicants either in person or by Skype or other technology.

*Note:* WSU psychology students with a 3.000 or higher undergraduate GPA and a recommendation from their academic advisor may enter the school psychology program without the other admission requirements (additional resume, professional goal statement, letters of recommendation, test scores). Students will still need to apply for the program through the Graduate School, interview with the EdS program faculty, and take the writing exam prior to admission.

### Program Requirements

The Specialist in Education (EdS) in school psychology requires 60 credit hours of coursework beyond the bachelor's degree. The degree is awarded upon completion of coursework and a practicum. A minimum grade of *B-* is required for the following core courses: CESP 821, CESP 824, CESP 854, CESP 855, CESP 858, CESP 859, CESP 914, CLES 861, CESP 803, CLES 715 and CESP 853 in addition to an overall 3.000 GPA.

### Background Check

Upon admission and prior to their first semester, all applicants admitted to this program must clear a criminal background check. There are

two reasons for this requirement. First, it is part of the university’s due diligence before placing students in field settings. Second, the check may alert applicants or students to issues that may subsequently affect their ability to work in their chosen field. In instances when a person’s criminal history raises reasonable concerns that should be cleared to engage in the field experiences and/or subsequently obtain licensure/endorsement, WSU may take a range of actions, including rescission of admission or dismissal from the program, depending on the nature of the concern.

For information regarding this requirement, visit: Advanced Programs (<https://wichita.edu/clesadvancedprograms/>)<sup>1</sup>.

**Licensure Requirements:**

For full licensure in school psychology, candidates must apply for a professional school license, register for a 4-credit-hour postspecialist internship, and complete the full-time, one-year internship in a public school.

The program can be completed in a full-time or part-time format. (See full-time course sequence below.)

**60-Hour School Psychology Educational Specialist Program - Postbaccalaureate**

Course	Title	Hours
<b>Required Courses</b>		
CESP 704	Introduction to Educational Statistics	3
CLES 715	Concepts and Principles of Behavior Analysis	3
CESP 728	Theories of Human Development	3
CESP 803	Counseling Theory	3
CESP 821	Multicultural Issues	3
CESP 824	Techniques of Counseling	3
CESP 835	Psychopathology and the DSM	3
CESP 840	Introduction to School Psychology and Exceptional Children	3
CESP 853	Ethics and Professional Conduct	3
CESP 854	Individual Achievement Assessment	3
CESP 855	Individual Intelligence Assessment	3
CESP 858	Research, Program Evaluation and Assessment	3
CESP 859	Curriculum Based Academic Assessment and Intervention	3
CLES 861	Behavioral, Social and Emotional Assessment	3
CESP 914	Consultation Techniques	3
CESP 946	Practicum in School Psychology	6
<b>Elective Courses</b>		
Select 9 credit hours of elective courses approved by advisor		9
<b>Total Credit Hours</b>		<b>60</b>

**Licensure**

CESP 977 Internship in School Psychology is a 4-credit-hour requirement for full licensure taken postdegree.

**Full-Time Course Sequence for Postbaccalaureate EdS in School Psychology**

<b>First Year</b>		<b>Credit Hours</b>
<b>Semester 1</b>		
CESP 704	Introduction to Educational Statistics	3
CLES 715	Concepts and Principles of Behavior Analysis	3
CESP 858	Research, Program Evaluation and Assessment	3
Elective	selected with advisor approval	3
<b>Credit Hours</b>		<b>12</b>
<b>Spring Semester</b>		
CESP 840	Introduction to School Psychology and Exceptional Children	3
CESP 855	Individual Intelligence Assessment	3
CESP 859	Curriculum Based Academic Assessment and Intervention	3
CESP 914	Consultation Techniques	3
<b>Credit Hours</b>		<b>12</b>
<b>Second Year</b>		
<b>Summer Semester</b>		
CESP 728	Theories of Human Development	3
CESP 803	Counseling Theory	3
CESP 821	Multicultural Issues	3
CESP 835	Psychopathology and the DSM	3
<b>Credit Hours</b>		<b>12</b>
<b>Fall Semester</b>		
CESP 824	Techniques of Counseling	3
CESP 853	Ethics and Professional Conduct	3
CESP 854	Individual Achievement Assessment	3
CLES 861	Behavioral, Social and Emotional Assessment	3
<b>Credit Hours</b>		<b>12</b>
<b>Spring Semester</b>		
CESP 946	Practicum in School Psychology	6
Elective	selected with advisor approval	3
<b>Credit Hours</b>		<b>9</b>
<b>Third Year</b>		
<b>Summer Semester</b>		
Elective	selected with advisor approval	3
<b>Credit Hours</b>		<b>3</b>
<b>Total Credit Hours</b>		<b>60</b>

*Note:* Students who wish to earn their full licensure should enroll in 4 credit hours of CESP 977 Internship in School Psychology postdegree.

<sup>1</sup> Link opens new window.

**Applied Learning**

Students in the school psychology (EdS) program are required to complete an applied learning or research experience to graduate from this program. The requirement can be met by completing a practicum experience CESP 946.

**EdS in School Psychology - Postmaster's**

This program leads to the Specialist in Education (EdS) degree in school psychology. School psychologists collaborate with educators and families to help ensure the academic, social, behavioral and emotional progress of children and youth in schools.

As school practitioners, school psychologists share their consultation, assessment, intervention and research expertise with youth, families

and educators to promote healthy cognitive, social and emotional development.

The school psychology Educational Specialist in Education (EdS) consists of 60 graduate credit hours if entering after obtaining an undergraduate degree or 39 graduate credit hours if entering with an earned master's in a related area.

### Benefits

- Excellent job prospects upon graduation. For the past several years, all graduates of WSU's school psychology program have become employed upon graduation.
- Entry into a satisfying career: In 2016, US News and World Report ranked school psychology as #2 in social services jobs and #57 in the 100 Best Jobs.
- Dual programming: Program graduates will have earned the EdS degree in school psychology and will be eligible for certification/licensure as a school psychologist.
- Nationally-approved program: The EdS program is approved by the National Association of School Psychologists (NASP).
- State-approved program: The Kansas State Department of Education has approved WSU's school psychology program.
- Flexible programming:
  - Courses are offered in the late afternoons and evenings so students can work full time while completing the degree. Some courses are offered in online/hybrid formats and summer courses are available.
  - Students can enter the 60-credit-hour program after obtaining an undergraduate degree and can move through the program in two years going full time. Or students may choose to attend part time.
  - Students with an earned master's in a related field can enter the 39-credit-hour program and go full time or part time.

### Admission

Applications for admission to the postmaster's EdS in school psychology are due March 15 for summer or fall admission and October 15 for spring admission. Late applications will be reviewed if space permits.

In addition to standard Graduate School requirements, applicants must have a 3.000 GPA and submit the following:

1. Evidence of academic competence.  
The GRE is not required depending on the applicant's *evidence of academic competence*. Evidence of academic competence can be provided in one of the following ways:
  - a. GPA of 3.000 or higher in all undergraduate work; or
  - b. Graduate Record Examination (GRE) scores of 150 or higher for each GRE subsection (Verbal and Quantitative), and a GRE score of 4.0 or higher for the Analytical Writing subtest; or
  - c. A score on the Miller Analogies Test equal to the national mean at the time of taking the test (400).
2. References — contact information for three (3) persons from whom we may request letters of reference. The individuals must know the applicant professionally or academically and have some basis for commenting on his or her probable success as a school psychologist.
3. Resume.
4. Goal Statement — a one-page statement of the applicant's professional goals.

5. Writing assessment — all applicants will take a writing assessment that will be scored according to a rubric. If the writing sample does not meet the criteria of the rubric, applicants can be accepted provisionally, contingent upon taking a noncredit course to improve the applicant's writing skills: ENGL 011 (or the equivalent). After taking the course, applicants will be required to retake and pass the writing assessment.
6. Interview — an interview with faculty is required of all applicants either in person or by Skype or other technology.

*Note:* WSU psychology students with a 3.000 or higher undergraduate GPA and a recommendation from their academic advisor may enter the school psychology program without the other admission requirements (additional resume, professional goal statement, letters of recommendation, test scores). Students will still need to apply for the program through the Graduate School, interview with the EdS program faculty, and take the writing exam prior to admission.

### Program Requirements

The Specialist in Education (EdS) in school psychology requires a minimum of 39 credit hours of coursework beyond the master's degree. The degree is awarded upon completion of coursework and practicums. More credits may be required if students are not able to demonstrate prerequisite knowledge requirements. Graduate transcripts will be evaluated by program faculty to determine whether prerequisite knowledge requirements have been met (see list below). A minimum grade of *B-* is required for the following core courses: CESP 821, CESP 824, CESP 854, CESP 855, CESP 858, CESP 859, CESP 914, CLES 861, CESP 803, CLES 715 and CESP 853 in addition to an overall 3.000 GPA.

### Background Check

Upon admission and prior to their first semester, all applicants admitted to this program must clear a criminal background check. There are two reasons for this requirement. First, it is part of the university's due diligence before placing students in field settings. Second, the check may alert applicants or students to issues that may subsequently affect their ability to work in their chosen field. In instances when a person's criminal history raises reasonable concerns that should be cleared to engage in the field experiences and/or subsequently obtain licensure/endorsement, WSU may take a range of actions, including rescission of admission or dismissal from the program, depending on the nature of the concern.

For information regarding this requirement, visit: Advanced Programs (<https://wichita.edu/clesadvancedprograms/>)<sup>1</sup>.

### Licensure Requirements:

For full licensure in school psychology, candidates must apply for a professional school license, register for a 4-credit-hour postspecialist internship, and complete the full-time, one-year internship in a public school.

The program can be completed in a full-time or part-time format. (See full-time course sequence below.)

### Required Prerequisite Knowledge

Course	Title	Hours
CESP 704	Introduction to Educational Statistics	3
CESP 728	Theories of Human Development	3
CESP 840	Introduction to School Psychology and Exceptional Children	3
CESP 803	Counseling Theory	3

CESP 821	Multicultural Issues	3
CESP 824	Techniques of Counseling	3
CESP 835	Psychopathology and the DSM	3

Students may take up to 9 credit hours of prerequisite knowledge courses as electives within the 39-credit-hour program of study

Note: Prerequisite knowledge will be assessed by review of graduate transcripts.

**39-Hour School Psychology Educational Specialist Program-Postmaster's**

Course	Title	Hours
<b>Required Courses</b>		
CLES 715	Concepts and Principles of Behavior Analysis	3
CESP 853	Ethics and Professional Conduct	3
CESP 854	Individual Achievement Assessment	3
CESP 855	Individual Intelligence Assessment	3
CESP 858	Research, Program Evaluation and Assessment	3
CESP 859	Curriculum Based Academic Assessment and Intervention	3
CLES 861	Behavioral, Social and Emotional Assessment	3
CESP 914	Consultation Techniques	3
CESP 946	Practicum in School Psychology	6
<b>Electives</b>		
Select 9 credit hours of elective courses approved by advisor		9
Total Credit Hours		39

**Licensure**

CESP 977 Internship in School Psychology is a 4-credit-hour requirement for full licensure taken postdegree.

**Full-Time Course Sequence for Postmaster's EdS in School Psychology**

First Year		Credit Hours
Fall Semester		
CESP 853	Ethics and Professional Conduct	3
Elective	selected with advisor	3
CESP 858	Research, Program Evaluation and Assessment	3
CLES 715	Concepts and Principles of Behavior Analysis	3
Credit Hours		12
Spring Semester		
CESP 855	Individual Intelligence Assessment	3
CLES 861	Behavioral, Social and Emotional Assessment	3
CESP 859	Curriculum Based Academic Assessment and Intervention	3
Credit Hours		9
Second Year		
Fall Semester		
CESP 914	Consultation Techniques	3
Elective	selected with advisor	3
Elective	selected with advisor	3
CESP 854	Individual Achievement Assessment	3
Credit Hours		12

Spring Semester		
CESP 946	Practicum in School Psychology	6
Credit Hours		6
Total Credit Hours		39

Note: Students who wish to earn their full licensure should enroll in 4 credit hours of CESP 977 Internship in School Psychology postdegree.

<sup>1</sup> Link opens new window.

**Applied Learning**

Students in the school psychology (EdS) program are required to complete an applied learning or research experience to graduate from this program. The requirement can be met by completing a practicum experience CESP 946.

**Certificate in Applied Behavior Analysis**

The department of counseling, educational leadership, educational and school psychology offers a graduate certificate program in applied behavior analysis. The certificate in applied behavior analysis (ABA) prepares a variety of school and community professionals with the knowledge and experience needed to better understand human behavior and to positively impact a wide spectrum of individuals with specific behavioral needs. This certificate program can be completed concurrently while pursuing a graduate degree or as a stand-alone certificate and meets the Behavior Analyst Certification Board (BACB)-required 270 classroom hours of graduate-level instruction. Supervision hours, required for certification, are arranged and completed by the student separately from the coursework. For more information, please see the BACB website (<http://BACB.com>)<sup>1</sup>. This graduate certificate can be earned in conjunction with an existing master's degree program or taken as postbachelor's nondegree Category A student.

The university provides the education necessary to meet licensure eligibility requirements in the State of Kansas. Licensure, though, is granted by the state rather than the university. Completion of this program does not guarantee licensure.

<sup>1</sup> Link opens new window.

**Admission**

1. A cumulative GPA of 3.000 or higher based on the last 60 credit hours of undergraduate coursework; a 3.000 or higher on all completed graduate coursework;
2. Three letters of recommendation;
3. Goal statement indicating reasons for pursuing certificate; and
4. Resume.

Current graduate students of WSU should complete the *Declaration of Intent to Pursue a Graduate Certificate* form through the Graduate School website (<http://www.wichita.edu/graduate/>)<sup>1</sup>. The admission review faculty may request any of the listed admission requirements before rendering an admission decision on the request.

<sup>1</sup> Link opens new window.

**Program Requirements**

This 18-credit-hour certificate program consists of six classes, which can be completed concurrently while pursuing a graduate degree or as a stand-alone certificate. This certificate meets the Behavior Analyst Certification Board (BACB)-required 270 classroom hours of graduate-level instruction. BCBA supervision hours, required for certification, are arranged and completed by the student separately from

the coursework. For more information, please see the BACB website (<http://BACB.com>)<sup>1</sup>.

**School Psychology EdS Students:** Twelve (12) of the 18 credit hours required for the certificate program are courses included in the school psychology degree requirements. The school psychology program includes 9 credit hours of electives. Students who choose to pursue the ABA certificate can choose the two remaining courses as two of their three electives.

Course	Title	Hours
<b>Required Courses</b>		
CESP 859	Curriculum Based Academic Assessment and Intervention	3
CESP 914	Consultation Techniques	3
CLES/CI 715	Concepts and Principles of Behavior Analysis	3
CLES/CI 721	Fundamental Elements in Behavior Change and Specific Behavior Change Procedures	3
CLES/CI 723	Single Subject Design	3
CESP 853/CI 797	Ethics and Professional Conduct	3
Total Credit Hours		18

Courses are spread across fall and spring semesters, which allows students to complete the certificate in one year.

In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

<sup>1</sup>Link opens new window.

## Human Performance Studies

### Degrees and Areas of Specialization

The department of human performance studies offers courses of study leading to the Master of Education (MEd) in exercise science. Academic training is provided for students who wish to prepare for careers in physical education or exercise science/wellness.

### Programs in Human Performance Studies

- MEd in Exercise Science (p. 88)
- Dual/Accelerated BA to MEd in Exercise Science (p. 89)

### Certificates in Human Performance Studies

- Graduate Certificate in Functional Aging (p. 90)

### Courses in Human Performance Studies

- Human Performance Studies (HPS) (p. 351)

## MEd in Exercise Science

### Admission

Admission to the master's degree program in exercise science requires students to have completed an undergraduate degree from a regionally accredited institution and have a grade point average of at least 2.750 (4.000 system) in all coursework including any postbachelor's graduate work in accordance with university graduate school admission policy.

Students applying to the program must complete the following prerequisite courses. Students who have 9 credit hours or less of prerequisites remaining may be granted admission on a full-standing basis, but must complete all remaining prerequisites within one year of admission.

Course	Title	Hours
CHEM 110	Preparatory Chemistry (or equivalent)	3
HPS 229	Applied Human Anatomy (or equivalent)	3
HPS 313	Exercise & Sport Nutrition (or equivalent)	3
HPS 328	Kinesiology (or equivalent)	3
HPS 490	Physiology of Exercise (or equivalent)	3

### Program Requirements

The Master of Education (MEd) in exercise science program offers a 31-credit-hour thesis option, a 30-credit-hour nonthesis with internship option, and a 30-credit-hour nonthesis without internship option. The thesis option requires an oral examination on the research; the nonthesis with internship and nonthesis without internship options require a written comprehensive examination.

All program students are required to take HPS 860, preferably in their first year in the program, to satisfy the professional and scholarly integrity training requirement.

Course	Title	Hours
<b>Core Courses</b>		
HPS 800	Recent Literature in the Profession	3
HPS 815	Fitness Assessment/Exercise Recommendations	3
HPS 830	Advanced Physiology and Anatomy of Exercise	3
HPS 860	Research Methods in the Profession	3

### Specialty Courses

Complete four (12 credit hours) of the following courses for option one.  
Complete three (9 credit hours) of the following courses for option two.  
Complete five (15 credit hours) of the following courses for option three.

HPS 510	Coaching Principles	3
HPS 541	Seminar in Strength and Conditioning	3
HPS 715	Body Composition and Weight Management	3
HPS 716	Psychosocial Aspects of Sports Injury, Illness and Rehabilitation	3
HPS 732	Pathophysiology of Cardiovascular Disease	3
HPS 750L	Motivation	3
HPS 762	Statistical Concepts in Human Performance Studies	3
HPS 780	Physical Dimensions of Aging	3
HPS 781	Cooperative Education	1-3
HPS 790	Applied Exercise Physiology	3
HPS 795	Physiology of Athletic Performance	3
HPS 797	Exercise in Health and Disease	3
HPS 890	Special Topics	1-4
HPS 895	Applied Research	1-4

### Thesis Option

Course	Title	Hours
Complete the four required core courses		12
Select four specialty courses		12
Select one elective course <sup>1</sup>		3

HPS 875	Thesis Research <sup>2</sup>	2
HPS 876	Thesis <sup>2</sup>	2
Successfully complete the required oral defense of thesis		
Total Credit Hours		31

**Nonthesis Option with Internship**

Course	Title	Hours
Complete the four required core courses		12
Select three specialty courses (including HPS 890 Special Topics)		9
Select one elective course <sup>1</sup>		3
HPS 857	Internship in Exercise Science/Wellness <sup>2, 3</sup>	6
Successfully complete the required written comprehensive exam		
Total Credit Hours		30

**Nonthesis Option without Internship**

Course	Title	Hours
Complete the four required core courses		12
Select five specialty courses		15
Select one elective course <sup>1</sup>		3
Successfully complete the required written comprehensive exam		
Total Credit Hours		30

- <sup>1</sup> Elective courses are to be selected with advisor’s approval.
- <sup>2</sup> Applied learning/experiential class that does not formally meet in a classroom.
- <sup>3</sup> All required core and specialty courses must be completed before taking the internship.

**Sample Elective Courses Outside of the HPS Department**

Course	Title	Hours
SMGT 711	Structuring and Scheduling Sports Tournaments	3
AGE 798	Perspectives on an Aging Society	3
CSD 517	Communication in Special Populations: Aging	3
CSD 812	Aphasia	3
IME 549	Industrial Ergonomics	3

**Applied Learning**

Students in the exercise science (MEd) program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by the following: For students choosing the thesis option, complete HPS 875 and HPS 876. For students choosing the nonthesis option with internship, complete HPS 857. For students choosing the nonthesis option without internship, complete HPS 860.

**Dual/Accelerated BA to MEd in Exercise Science**

**Exercise Science PLUS**

The dual/accelerated 4+1 BA to MEd in exercise science (called Exercise Science PLUS) is specifically designed to prepare qualified students for graduate level work in exercise science through a coordinated accelerated program leading to both a Bachelor of Arts in exercise science and a Master of Education in exercise science. A student admitted into the accelerated program is allowed to enroll in courses for graduate credit while completing their undergraduate degree requirements for exercise science.

**Admission**

The student should apply for tentative graduate admission to the accelerated program at least one semester before the semester in which he or she desires to obtain credit at both the undergraduate and graduate levels.

To be considered for admission to the Accelerated 4+1 program, the following must be satisfied:

1. An undergraduate GPA of 2.750 overall;
2. Completion of at least 60 credit hours of undergraduate study (junior standing);
3. Currently hold and maintain a nationally accredited CPR/AED certification; and
4. Completion of HPS prerequisite courses for the master's program.

**Exercise Science PLUS Program Requirements**

A student admitted into the accelerated program is allowed to enroll in up to 9 credit hours of courses for graduate credit while completing their undergraduate degree requirements for exercise science.

All students majoring in exercise science are required to hold and maintain a nationally accredited CPR/AED certification throughout the program. First Aid certification is recommended.

Course	Title	Hours
<b>Exercise Science Course Electives</b>		
Must be a 500-level or higher course		
HPS 510	Coaching Principles	3
HPS 590	Independent Study	1-3
HPS 715	Body Composition and Weight Management	3
HPS 732	Pathophysiology of Cardiovascular Disease	3
HPS 750L	Motivation	3
HPS 780	Physical Dimensions of Aging	3
HPS 790	Applied Exercise Physiology	3
HPS 795	Physiology of Athletic Performance	3
HPS 797	Exercise in Health and Disease	3

Electives outside the HPS department may be considered for "ES Course Electives" upon approval.

**Graduate Exercise Science (ES) Curriculum**

(Post Dual/Accelerated Process)

Fall Semester		Credit Hours
HPS 815	Fitness Assessment/Exercise Recommendations	3
HPS 800	Recent Literature in the Profession	3
Special Topics		3
Elective		3
Credit Hours		12
Spring Semester		Credit Hours
HPS 860	Research Methods in the Profession	3
HPS 830	Advanced Physiology and Anatomy of Exercise	3
Elective		3
Credit Hours		9
Total Credit Hours		21

## Certificate in Functional Aging

This certificate provides knowledge and training for those working in the field of aging. It will help them assist older adults to retain sufficient levels of functional ability and to understand the physiologic changes that occur with aging and how these changes impact the quality of life for older adults.

### Admission

Students seeking a graduate certificate must be admitted to the Graduate School in a degree program or in nondegree, Category A status. All Graduate School policies relative to admissions apply. Students must maintain a grade point average of 3.000 or better.

Students must receive approval to enter this certificate program from their graduate advisor and the certificate in functional aging faculty committee. To initiate the application process, candidates must provide a completed application form and a one-page statement to the certificate in functional aging faculty committee explaining the student's purpose and interest in obtaining the certificate in functional aging, as well as his or her career plans.

### Program Requirements

The program consists of 12 credit hours of coursework selected from the following list. Students may not take more than 6 credit hours from a single department. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

Course	Title	Hours
Select 12 credit hours from the following:		12
CSD 517	Communication in Special Populations: Aging	
CSD 812	Aphasia	
AGE 798	Perspectives on an Aging Society	
HPS 780	Physical Dimensions of Aging	
HPS 895	Applied Research	
PSY 905	Cognitive/Learning Foundations of Behavior	
PSY 921	Seminar in Human Factors	
PSY 925	Seminar in Perception	
Total Credit Hours		12

## School of Education

### Degrees and Areas of Specialization

The School of Education offers courses of study leading to the Master of Education (MEd) in learning and instructional design, and the Master of Education (MEd) in special education (high incidence, early childhood unified and low incidence). A Master of Arts in Teaching (MAT) is offered for students seeking an initial license through an alternative licensure program. The theory to practice model offers two tracks — the transition to teaching (T2T) track and the early childhood unified residency (ECU-R) track. For those already holding a teaching certificate or license, the School of Education offers coursework to prepare students for endorsements in reading, ESOL and special education areas (high incidence, low incidence and gifted). For those licensed in elementary education, an early childhood unified endorsement is also available.

Graduate certificates are offered in educational technology, interdisciplinary STEM education and literacy.

### Applied Learning

Students are required to complete an applied learning or research experience to graduate from programs in education. The requirements can be met by the following:

Students who graduate from an undergraduate program must experience at least 600 hours of field experience/internship in various classroom settings throughout their specific program. In addition, all initial licensure students must complete the Teacher Licensure Capstone, which is an action research requirement for licensure.

Students who graduate from all master's degree programs must complete either a master's thesis or capstone research project in which the emphasis is on applying professional practices to research and is directly linked to applied learning. In addition, students who graduate from the graduate program in special education must experience at least 135 hours of field experience/internship in special education classrooms.

Applied learning occurs when students develop knowledge, skills and values from personal direct experiences that go beyond the traditional lecture or lab. Applied learning encompasses a variety of activities including service learning, undergraduate research, theses, dissertations and other creative (e.g., live performances) and professional services (e.g., practicums, internships, clinical rotations and cooperative education).

The applied learning experience requirements for the initial licensure programs develop knowledge, skills and values primarily through practicums and internships. These internship experiences allow students to apply educational theory into practice. In addition, students complete the Teacher Licensure Capstone (TLC), which is a product of research in the K–12 classroom that includes data collection, teaching, data analysis and reflection.

The applied learning experience requirements for the graduate programs develop knowledge, skills and values primarily through the completion of either the master's thesis or the capstone project. The completion of these terminal projects allow students to apply knowledge and skills gained from their coursework to independent research. In addition, students in the special education graduate program are able to apply the knowledge gained from traditional classroom learning through their practicum/internship requirements.

### Programs in the School of Education

#### MEd - Master of Education

- MEd - Master of Education in Learning and Instructional Design (p. 92) (online program)
- MEd - Master of Education in Special Education - Early Childhood Unified (p. 93) (online program)
- MEd - Master of Education in Special Education - High Incidence (p. 94) (online program)
- MEd - Master of Education in Special Education - High Incidence, Alternative Certification Track (p. 96) (online program)
- MEd - Master of Education in Special Education - Low Incidence (p. 97) (online program)

#### MAT - Master of Arts in Teaching

- Transition to Teaching Track (p. 91)
- Early Childhood Unified Residency (p. 91)

### Certificates in the School of Education

- Graduate Certificate in Instructional Design in Professional Practice (p. 98)

- Graduate Certificate in Interdisciplinary STEM Education (p. 98)
- Graduate Certificate in Literacy (p. 99)
- Graduate Certificate in Mentoring and Coaching (p. 99)
- Graduate Certificate in Online Learning and Educational Technology (p. 100)

**Courses in the School of Education**

- Curriculum and Instruction (CI) (p. 284)

**MAT - Master of Arts in Teaching (Early Childhood Unified Residency Track)**

The WSU MAT-ECU program reflects what is currently known about best practices in early childhood teacher preparation. With an emphasis on urban schools, the program prepares teaching residents to meet the needs of children with and without disabilities in varied settings. The MAT-ECU teacher residency program was developed using a PDS philosophy that centers on shared responsibility for teacher preparation between universities and schools as well as a shared responsibility for student learning. It involves students working in classrooms as paraprofessionals while working on their graduate degree and initial licensure.

**Admission**

The program is limited to individuals who have:

1. Completed at least a BA/BS degree from an accredited higher education institution prior to entry into the program.
2. For full admission, a GPA of 3.000, or a GPA of 2.750 to 2.999 to be admitted on probation.

Applicants to the MAT ECU residency program must pass a criminal background check that they obtain at their own expense. Information regarding the approved background check service provider is available from College of Applied Studies Advising.

**Program Requirements**

Master of Arts in Teaching (MAT) early childhood unified residency (ECU-R) track is offered for students seeking initial KSDE license in early childhood unified: birth–third grade. The graduate level initial licensure program consists of 36 credit hours. The core curriculum consists of:

Course	Title	Hours
Select courses in child development and pedagogy		21
Select research and reflection (within the 11 credit hours of research, students are required to complete either an action research portfolio or a master’s thesis)		11
Select an internship with university supervisors provided		4
<b>Total Credit Hours</b>		<b>36</b>

**MATECU-R Program of Study**

Course	Title	Hours
<b>Required Courses</b>		
CESP 729	Theories of Early Childhood Development	3
CI 603	Foundations of Early Childhood Unified	2
CI 614	ECU Assessment and Methods: Infants, Toddlers and Families	3
CI 617	ECU Assessment and Methods: Preschool	3

CI 704	Assessment and Methods K-1	3
CI 711	Multicultural Education	3
CI 733	Assessments and Methods: Grades 2–3	3
CI 743	Transition to Teaching or Residency Internship I	1
CI 744	Transition to Teaching or Residency Internship II	1
CI 748	Transition to Teaching or Residency Internship III	1
CI 749	Transition to Teaching or Residency Internship IV	1
CI 796	Family and Professional Collaboration	3
CI 849	Practices and Trends in Action Research	2
CLES 801	Introduction to Educational Research	3
<b>Capstone Courses</b>		
CI 860	Seminar in Research Problems	2
Select one of the following combinations		2
CI 862 & CI 863	Evidence-Based Inquiry: Capstone Project Proposal and Evidence-Based Inquiry: Capstone Project	
CI 875 & CI 876	Master’s Thesis and Master’s Thesis	
CAS 501	Teacher Licensure Capstone	0
<b>Total Credit Hours</b>		<b>36</b>

**Applied Learning**

Students are required to complete an applied learning or research experience to graduate from programs in the School of Education. The requirements can be met by completing either a master’s thesis or capstone research project in which the emphasis is on applying professional practices to research and is directly linked to applied learning.

**MAT - Master of Arts in Teaching (Transition to Teaching Track)**

The Transition to Teaching (T2T) program at WSU is a two-year alternative licensure program that combines graduate coursework and full-time, paid teaching in an accredited school as the classroom teacher of record. The program is geared toward working professionals looking for a career change and more recent graduates wanting to teach. Candidates receive preparation to support them in meeting licensure requirements in the first 29 credit hours (two years). Those who wish to earn the MAT degree must complete an additional 7 credit hours of research in the third year.

**Admission**

Students in the MAT transition to teaching track must have an undergraduate degree in a content licensure field (i.e., biology, chemistry, mathematics, etc.), or *equitable coursework*, and meet eligibility requirements for a Kansas State Department of Education (KSDE) restricted license. This practice-to-theory model requires students to have a signed teaching contract from an accredited school district to be eligible for a restricted license and to participate in coursework.

**To be eligible for the T2T program, students must:**

- Complete at least a BA/BS degree (in the secondary content field in which the candidate is seeking licensure), or *equivalent coursework* from an accredited higher education institution in a regular content area eligible for restricted licensure.
- Meet GPA requirements of 2.750 in last 60 credit hours of college coursework completed to meet state alternative certification and graduate school admission requirements.
- Be fully admitted to the WSU Graduate School, in the T2T/MAT degree-bound category.
- Receive passing scores on the Praxis Subject Assessment exam for the restricted licensure area.
- **Secure a teaching contract in an accredited Kansas school district.**
- Complete summer prerequisite education coursework.
- Complete a supervised practical training experience under the collaboration of WSU and the hiring school district.

#### Preferred criteria for success in the T2T program:

- Evidence of work experience in a field corresponding with the subject(s) they will teach.
- Evidence of working with middle or high school students.

#### Program Requirements

The Master of Arts in Teaching (MAT) transition to teaching track is a 36-credit-hour program. The program is offered for students seeking an initial license through an alternative licensure program. The core curriculum consists of:

Course	Title	Hours
Select courses in child/adolescent development and pedagogy		21
Select research and reflection (within the 11 hours of research, students are required to complete either an action research portfolio or a master's thesis)		7
Select an internship with university supervisors provided		8
Total Credit Hours		36

#### MAT Transition to Teaching Program of Study

Course	Title	Hours
<b>Required Courses</b>		
CI 707	Adolescent Development <sup>1</sup>	2
CI 779	Disciplinary Literacy and 21st Century Fluencies	2
CI 701	Foundations of Education <sup>1</sup>	2
CI 702	Introduction to Exceptional Children <sup>1</sup>	2
CI 710B	Differentiated Instruction for Active Engagement <sup>1</sup>	2
CI 743	Transition to Teaching or Residency Internship I <sup>1</sup>	1
CI 744	Transition to Teaching or Residency Internship II <sup>1</sup>	1
CI 748	Transition to Teaching or Residency Internship III <sup>1</sup>	3
CI 749	Transition to Teaching or Residency Internship IV <sup>1</sup>	3
CAS 501	Teacher Licensure Capstone	0
CI 760A	Creating an Effective Classroom <sup>1</sup>	3
CI 761A	Instructional Planning and Technology <sup>1</sup>	2
CI 769	Instructional Strategies, Technology Integration and Assessment <sup>1</sup>	2

CI 794	Diversity and Culture in a Global Society <sup>1</sup>	3
CI 789	Working with Diverse Student Populations <sup>1</sup>	1
CLES 801	Introduction to Educational Research	3
<b>Capstone Courses</b>		
CI 860	Seminar in Research Problems	2
Select one of the following combinations		2
CI 862 & CI 863	Evidence-Based Inquiry: Capstone Project Proposal and Evidence-Based Inquiry: Capstone Project	
CI 875 & CI 876	Master's Thesis and Master's Thesis	
Total Credit Hours		36

<sup>1</sup> Transition to teaching program course; a grade of B- or better is required.

#### Applied Learning

Students are required to complete an applied learning or research experience to graduate from programs in the School of Education. The requirements can be met by completing either a master's thesis or capstone research project in which the emphasis is on applying professional practices to research and is directly linked to applied learning.

## MEd in Learning and Instructional Design

The Master of Education (MEd) in learning and instructional design at Wichita State University is an innovative, dynamic and flexible program designed for educators and professionals alike. The program focuses on new approaches to learning and instructional design, best practices in education and corporate training.

The Master of Education in learning and instructional design is ideal for education and professional development career advancement for those who are engaged in the K–12 teaching and workplace training of adult learners. It is an online program that is offered for students who meet the admission requirements and are seeking a graduate level degree in learning and instructional design leadership.

#### Admission

In addition to the Graduate School admission requirements, students seeking the Master of Education in learning and instructional design (MEd LID) must meet the following two criteria:

1. Show potential to do graduate work by meeting one or more of the following:
  - a. Graduate from the WSU teacher education program with a minimum GPA of 2.750; *or*
  - b. Graduate from an NCATE accredited program with a 3.000 or better GPA; *or*
  - c. GPA of at least 2.750 and GRE scores of at least 152 in Verbal and 153 in Quantitative; *or*
  - d. Provide alternative evidence that documents academic aptitude.
2. Provide evidence of involvement in teaching, training and/or program design, or recommendation by the graduate program committee.

**Program Requirements**

The Master of Education (MEd) in learning and instructional design is a 30-credit-hour, online program. The program is offered for students who meet the admission requirements and are seeking a graduate level degree in learning and instructional design.

**Background Check**

Upon admission and prior to their first semester, all applicants admitted to this program must clear a criminal background check. There are two reasons for this requirement. First, it is part of the university’s due diligence before placing students in field settings. Second, the check may alert applicants or students to issues that may subsequently affect their ability to work in their chosen field. In instances when a person’s criminal history raises reasonable concerns that should be cleared to engage in the field experiences and/or subsequently obtain licensure/endorsement, WSU may take a range of actions, including rescission of admission or dismissal from the program, depending on the nature of the concern.

For information regarding this requirement, visit the Advanced Programs website (<https://wichita.edu/clesadvancedprograms/>)<sup>1</sup>.

**Curriculum**

The core curriculum consists of 15 credit hours of foundational coursework, 12 credit hours of electives and 3 credit hours of thesis or nonthesis work.

Course	Title	Hours
<b>Required Courses</b>		
CI 795	Change, Creativity and Innovation	3
CI 880	Learning Theory and Curriculum Design	3
CI 884	Inquiry Into Instructional Practice: Part 1	3
CI 885	Inquiry Into Instructional Practice: Part 2	3
CI 893	Instructional Leadership: Professionalism and Collaboration	3

<b>Electives</b>	Select 12 credit hours based on personal professional interest and approved by advisor. See specialization options below.	12
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<b>Thesis or Nonthesis Option Requirements</b>		
Select 3 credit hours from one of the following combinations		3
CI 862 & CI 863	Evidence-Based Inquiry: Capstone Project Proposal and Evidence-Based Inquiry: Capstone Project	
CI 875 & CI 876	Master’s Thesis and Master’s Thesis	
<b>Total Credit Hours</b>		<b>30</b>

**Specialization Options**

Course	Title	Hours
<b>Educational Technology (12 credit hours)</b>		
CI 758	Nature of Technology and Educational Implications	3
CI 881	Instructional Theory	3
Select 6 credit hours from the following list		6
CI 505	Science Technology and Society	
CI 780M	Technology in the Classroom: Mathematics	
CI 780S	Technology in the Classroom: Science	

CI 785	Instructional Design and Learning Management Systems (LMS)	
CI 787	Emerging Educational Technology	
CI 788	Multimedia Production	
<b>Interdisciplinary STEM (12 credit hours)</b>		
CI 764	Interdisciplinary STEM Education: Entry Course	3
CI 867	Interdisciplinary STEM Education: Exit Course	3
Select 6 credit hours from the following list		6
CI 780S	Technology in the Classroom: Science	
CI 520	Physical Science in the Elementary Classroom	
CI 505	Science Technology and Society	
CI 750AL	Instructional Multimedia Development Workshop	
CI 519	Mathematical Investigations	
CI 750AM	Interactive Online Teaching Workshop	
<b>Literacy (12 credit hours)</b>		
Select 12 credit hours in consultation with the program advisor from the Certificate in Literacy		12
<b>ESOL (12 credit hours)</b>		
Select 12 credit hours in consultation with the program advisor		12
<b>Interdisciplinary, Student-Designed (12 credit hours)</b>		
Select 12 credit hours in consultation with the program advisor		12

<sup>1</sup> Link opens new window.

**Applied Learning**

To graduate from programs in curriculum and instruction, students are required to complete an applied learning or research experience. The requirements can be met by completing either a master’s thesis or capstone research project in which the emphasis is on applying professional practices to research and is directly linked to applied learning.

**MEd in Special Education - Early Childhood Unified**

The Master of Education in special education - early childhood unified emphasis at Wichita State University prepares teachers certified in K-6 general education for teaching all students ages Birth–3rd grade. The program is designed to develop reflective practitioners who possess both a theoretical understanding and practical skills related to (a) the field of early childhood education, (b) the field of special education for students with both high and low incidence needs Birth–3rd grade, (c) effective communication and collaboration with families and other professionals, and (d) research-validated practices.

**Program Overview**

The Early Childhood Unified (ECU) program is designed to prepare teachers of young children (birth through grade 3). The ECU program develops reflective practitioners who possess theoretical and practical developmental, educational, communicative, collaborative and family- and child-centered skills. The ECU program’s advisory committee provides continual guidance to the program to assure that all candidates graduate with the belief that:

- All young children, birth through grade 3 (i.e., children with and without exceptionalities, at every socioeconomic level, from all cultures) are competent, creative and curious learners;
- Working with, understanding and respecting families is a critical component of working with young children;
- Development and education are focused for each individual child in terms of the child's relation with the family, other children, teachers, the school community and society at large;
- Children must learn through both constructing their own knowledge and by direct instruction;
- The unique needs of all young children must be met; and
- Programs and services provided are based on law, and scientifically- and evidence-based practices.

The degree program begins with a prerequisite foundational course and proceeds through methods/assessment courses in three different age levels. These courses are accompanied by three different practicum experiences. The remainder of the program consists of courses on family collaboration, research and finally a culminating capstone or thesis project.

#### **Endorsement Only Option**

- Candidates may elect to complete only the **first 24-credit-hours** in the program as preparation to support them in attaining an endorsement in Early Childhood Unified. These candidates are considered nondegree seeking graduate students.
- Apply for provisional endorsement after completion of only 9 credit hours of coursework and the first practicum experience.

#### **Admission**

The special education degree with an emphasis in early childhood unified is available for individuals who are certified to teach young children (birth to age 8). Admission requirements include:

1. GPA of 3.000 or higher; or GPA of at least 2.750 and official GRE scores of at least 152 in Verbal and 153 in Quantitative.
2. Full admission to WSU Graduate School.
3. Current teaching certificate/license (or eligible for a certificate/license).

Applications are evaluated when received for the MEd in special education. Only a limited number of students are accepted into this program each year.

#### **Program Requirements**

The Master of Education in special education — early childhood unified track may be earned under a thesis or nonthesis option. The program requires 31 credit hours of coursework, including a research component, practical experience, and the culminating activity (i.e., thesis or nonthesis).

#### **Background Check**

Upon admission and prior to their first semester, all applicants admitted to this program must clear a criminal background check. There are two reasons for this requirement. First, it is part of the university's due diligence before placing students in field settings. Second, the check may alert applicants or students to issues that may subsequently affect their ability to work in their chosen field. In instances when a person's criminal history raises reasonable concerns that should be cleared to engage in the field experiences and/or subsequently obtain licensure/endorsement, WSU may take a range of actions, including rescission of admission or dismissal from the program, depending on the nature of the concern.

For information regarding this requirement, visit: Advanced Programs (<https://wichita.edu/clesadvancedprograms/>)<sup>1</sup>.

#### **Curriculum**

Course	Title	Hours
<b>Required Courses</b>		
CI 603	Foundations of Early Childhood Unified	2
CI 614	ECU Assessment and Methods: Infants, Toddlers and Families	3
CI 617	ECU Assessment and Methods: Preschool	3
CI 703	Assessments and Methods: K-3	3
CI 796	Family and Professional Collaboration	3
<b>Practicum</b>		
Select 10 credit hours from the following		10
CI 847KG	Practicum/Field Experience in ECU: K-3	
CI 847IT	Practicum/Field Experience in ECU: Infant/Toddler	
CI 847P	Practicum/Field Experience in ECU: Preschool	
<b>Research Component</b>		
CESP 704	Introduction to Educational Statistics	3
or CLES 801	Introduction to Educational Research	
Culminating Experience - select one of the following combinations		4
CI 862 & CI 863	Evidence-Based Inquiry: Capstone Project Proposal and Evidence-Based Inquiry: Capstone Project	
CI 875 & CI 876	Master's Thesis and Master's Thesis	
Total Credit Hours		31

Candidates may elect to complete only the **first 24 credit hours** in the program as preparation to support them in attaining an endorsement in Early Childhood Unified. These candidates are considered nondegree-seeking graduate students.

<sup>1</sup> Link opens new window.

#### **Applied Learning**

Students are required to complete an applied learning or research experience to graduate from programs in curriculum and instruction. The requirements can be met by completing either a master's thesis or capstone research project in which the emphasis is on applying professional practices to research and is directly linked to applied learning. In addition, students who graduate from the graduate program in special education must experience at least 135 hours of field experience/internship in special education classrooms.

## **MEd in Special Education - High Incidence**

The Master of Education or endorsement in special education - high incidence at Wichita State University prepares educators for teaching students with mild to moderate disabilities. The program is designed to develop reflective practitioners who possess both theoretical understanding and practical skills related to (a) the field of special education for students with functional learning needs, (b) effective communication and collaboration, and (c) research-validated practices. The special education - high incidence program prepares professional

practitioners to make curricular and instructional modifications in order to facilitate successful student learning. Courses are offered online enabling graduate students to earn their degree while employed full time and balancing other obligations.

For more information, visit the program website (<https://www.wichita.edu/SPEDHighIncidence/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

**Admission**

The master's or endorsement in special education - high incidence admission requirements include:

1. GPA of 3.000 or higher; or GPA of at least 2.750 and official GRE scores of at least 152 in Verbal and 153 in Quantitative.
2. Full admission to WSU Graduate School.
3. Current teaching certificate/license (or eligible for a certificate/license).

Applications are evaluated when received for the MEd in special education.

**Program Requirements**

The fully online Master of Education in special education — high incidence may be earned under a thesis or nonthesis option — 30 credit hours of coursework, practical experience and the culminating experience (i.e., thesis or nonthesis). Candidates may elect to complete only the 23 credit hours of required courses as preparation to apply for an endorsement.

**Background Check**

Upon admission and prior to their first semester, all applicants admitted to this program must clear a criminal background check. There are two reasons for this requirement. First, it is part of the university's due diligence before placing students in field settings. Second, the check may alert applicants or students to issues that may subsequently affect their ability to work in their chosen field. In instances when a person's criminal history raises reasonable concerns that should be cleared to engage in the field experiences and/or subsequently obtain licensure/endorsement, WSU may take a range of actions, including rescission of admission or dismissal from the program, depending on the nature of the concern.

For more information visit the special education background check requirement ([https://www.wichita.edu/sped\\_background\\_check/](https://www.wichita.edu/sped_background_check/))<sup>1</sup>.

**MEd in Special Education – High Incidence Track**

Course	Title	Hours
<b>Required Courses</b>		
CI 784	Foundations of Education for Individuals with Exceptionalities	3
CI 724	Introduction to Teaching Strategies for Students With Mild/Moderate Disabilities	3
CI 749A	Practicum: High-Incidence Learners <sup>2</sup>	3
CI 796	Family and Professional Collaboration	3
CI 812	Transition across Life Span	2

CI 815 & 815A	Advanced Teaching Strategies for Students with Mild/Moderate Disabilities and Internship/Practicum: Advanced Teaching Strategies for Students with Mild/Moderate Disabilities <sup>3</sup>	3
CI 818	Positive Behavior Supports for Students With Exceptionalities <sup>4</sup>	3
or CI 721	Fundamental Elements in Behavior Change and Specific Behavior Change Procedures	
or CLES 721	Fundamental Elements in Behavior Change and Specific Behavior Change Procedures	
CI 818A	Internship/Practicum: Positive Behavior Supports <sup>2</sup>	1
CI 822	Principles of Nondiscriminatory Assessment for Students With Exceptionalities	2

**Research Component**

CLES 801	Introduction to Educational Research	3
or CI 723	Single Subject Design	
or CLES 723	Single Subject Design	
CI 862	Evidence-Based Inquiry: Capstone Project Proposal <sup>5</sup>	2
or CI 875	Master's Thesis	
CI 863	Evidence-Based Inquiry: Capstone Project <sup>6</sup>	2
or CI 876	Master's Thesis	

Total Credit Hours 30

<sup>1</sup> Link opens new window.

<sup>2</sup> Requires a B- or better.

<sup>3</sup> This combination must be taken together. Requires a B- or better.

<sup>4</sup> Must be taken with CI 818A. CI/CLES 721 course option is only for students who are also completing the ABA Graduate Certificate program.

<sup>5</sup> Requires completion of core courses and CLES 801 or CI/CLES 723.

<sup>6</sup> Requires completion of CI 862 or CI 875.

*Note:* After successful completion of the first 9 credit hours, the candidate is eligible to apply to KSDE for a two-year provisional endorsement. A second two-year provisional may be applied for if the candidate has continued to make adequate progress in the program. Please contact the Licensure Office in College of Applied Studies Advising, 316-978-3300, for information on the licensure application to submit.

**Applied Learning**

Students are required to complete an applied learning or research experience to graduate from programs in curriculum and instruction. The requirements can be met by completing either a master's thesis or capstone research project in which the emphasis is on applying professional practices to research and is directly linked to applied learning. In addition, students who graduate from the graduate program in special education must experience at least 135 hours of field experience/internship in special education classrooms.

## MEd Special Education - High Incidence, Alternative Certification

The special education high incidence alternative certification program at WSU provides an alternative route to the special education teaching profession and is geared toward individuals who have experience working as paraprofessionals.

The program prepares reflective practitioners who possess both theoretical understanding and practical skills for teaching students with mild to moderate disabilities. Candidates receive preparation to support them in meeting teacher licensure requirements in the first 30–31 credit hours (two years). Students must complete an additional 7 credit hours for the MEd degree. Courses are offered fully online. Candidates must continue full-time employment as a special education teacher while completing their coursework. Loss of employment or continuous improvement will result in dismissal from the program.

### Admission

To be considered for admission to the special education high incidence alternative certification program, applicants must meet the following requirements:

- Full admission to the WSU Graduate School;
- Signed documentation from a building or district administrator confirming the applicant has worked as a paraprofessional for at least one year; and
- Letter of recommendation from a building or district level administrator that highlights the applicant's strengths as an educator and the school district's commitment to mentoring.

Applications are evaluated when received for the special education high incidence alternative certification program.

Upon admission, students will be required to sign documentation that acknowledges their understanding of the following program requirements:

1. KSDE Form 24 — Limited Apprentice Application with sections A and B fully completed and signed by appropriate parties must be submitted to the program chair in order to enroll in preparatory coursework. KSDE Form 24 provides the necessary documentation of having secured full-time employment as a special teacher that will start no later than the second semester of the program.
2. Successful completion of the first semester of coursework and submission of the fully completed and signed KSDE Form 24P to the program chair is required to begin the required core courses.

### Program Requirements

#### Background Check

Upon admission and prior to their first semester, all applicants admitted to this program must clear a criminal background check. There are two reasons for this requirement. First, it is part of the university's due diligence before placing students in field settings. Second, the check may alert applicants or students to issues that may subsequently affect their ability to work in their chosen field. In instances when a person's criminal history raises reasonable concerns that should be cleared to engage in the field experiences and/or subsequently obtain licensure/endorsement, WSU may take a range of actions, including rescission of admission or dismissal from the program, depending on the nature of the concern.

For more information visit special education background check requirement ([https://www.wichita.edu/sped\\_background\\_check/](https://www.wichita.edu/sped_background_check/))<sup>1</sup>.

Course	Title	Hours
<b>Preparatory Coursework</b>		
Taken as a cohort during the first semester of the program while still employed as a paraprofessional. If summer start, employment as a paraprofessional not required.		
CI 784	Foundations of Education for Individuals with Exceptionalities	3
CI 506	Introduction to the Education Profession for Special Educators	2
CI 556	Instructional Planning and Classroom Management	2
<b>Required Core Courses</b>		
Students must start full-time employment as a special education teacher.		
CI 557	Integrated Seminar and Mentoring <sup>2</sup>	3-4
CI 724	Introduction to Teaching Strategies for Students With Mild/Moderate Disabilities	3
CI 749A	Practicum: High-Incidence Learners <sup>3</sup>	3
CI 796	Family and Professional Collaboration	3
CI 812	Transition across Life Span	2
CI 815	Advanced Teaching Strategies for Students with Mild/Moderate Disabilities <sup>4</sup>	2
CI 815A	Internship/Practicum: Advanced Teaching Strategies for Students with Mild/Moderate Disabilities <sup>5</sup>	1
CI 818	Positive Behavior Supports for Students With Exceptionalities <sup>6</sup>	3
or CI 721	Fundamental Elements in Behavior Change and Specific Behavior Change Procedures	
or CLES 721	Fundamental Elements in Behavior Change and Specific Behavior Change Procedures	
CI 818A	Internship/Practicum: Positive Behavior Supports <sup>7</sup>	1
CI 822	Principles of Nondiscriminatory Assessment for Students With Exceptionalities	2
<b>Research Component</b>		
CLES 801	Introduction to Educational Research <sup>8</sup>	3
or CI 723	Single Subject Design	
or CLES 723	Single Subject Design	
CI 875	Master's Thesis <sup>9</sup>	2
or CI 862	Evidence-Based Inquiry: Capstone Project Proposal	
CI 876	Master's Thesis <sup>10</sup>	2
or CI 863	Evidence-Based Inquiry: Capstone Project	
Total Credit Hours		37-38

<sup>1</sup> Link opens new window.

<sup>2</sup> Students must enroll in CI 557 every fall and spring semester for 1 credit hour in addition to their other required core courses. Regular live online meetings are required as part of this course.

<sup>3</sup> Requires a B- or better.

<sup>4</sup> Must be taken with CI 815A.

- <sup>5</sup> Must be taken with CI 815. Requires a B- or better.
- <sup>6</sup> Must be taken with CI 818A. CI 721 and CLES 721 course options are only for students who are also completing the ABA Graduate Certificate program.
- <sup>7</sup> Must be taken with CI 818, CI 721 or CLES 721. Requires a B- or better.
- <sup>8</sup> CI 723 and CLES 723 course options are only for students who are also completing the ABA Graduate Certificate program.
- <sup>9</sup> Requires completion of all preparatory and required core courses, as well as CLES 801 or CI/CLES 723.
- <sup>10</sup> Requires completion of all preparatory and required core courses, as well as completion of CI 875 or CI 862.

*Note:* Students are eligible to take Praxis exams for teacher licensure after completion of all of the preparatory and required core courses and approval from a faculty advisor.

**Applied Learning**

Students are required to complete an applied learning or research experience to graduate from programs in curriculum and instruction. The requirements can be met by completing either a master’s thesis or capstone research project in which the emphasis is on applying professional practices to research and is directly linked to applied learning. In addition, students who graduate from the graduate program in special education must experience at least 135 hours of field experience/internship in special education classrooms.

**MEd or Endorsement in Special Education - Low Incidence**

The Master of Education or endorsement in special education — low incidence at Wichita State University prepares educators for teaching students with moderate to severe disabilities. The program is designed to develop reflective practitioners who possess both theoretical understanding and practical skills related to:

- The field of special education for students with functional learning needs,
- Effective communication and collaboration, and
- Research-validated practices.

The special education — low incidence program prepares professional practitioners to make curricular and instructional modifications in order to facilitate successful student learning. Courses are offered online enabling graduate students to earn their degree while employed full time and balancing other obligations.

**Admission**

Admission requirements include:

- GPA of 3.000 or higher; **or** GPA of at least 2.750 and official GRE scores of at least 152 in Verbal and 153 in Quantitative.
- Full admission to WSU Graduate School.
- Current teaching certificate/license (or eligible for a certificate/license).

Applications are evaluated upon receipt.

**Program Requirements**

The fully online Master of Education in special education — low incidence may be earned under a thesis or nonthesis option — 30 credit hours of coursework, practical experience and the culminating

experience (i.e., thesis or nonthesis). Candidates may elect to complete only the 23-credit-hour core as preparation to apply for an endorsement.

**Background Check**

Upon admission and prior to their first semester, all applicants admitted to this program must clear a criminal background check. There are two reasons for this requirement. First, it is part of the university’s due diligence before placing students in field settings. Second, the check may alert applicants or students to issues that may subsequently affect their ability to work in their chosen field. In instances when a person’s criminal history raises reasonable concerns that should be cleared to engage in the field experiences and/or subsequently obtain licensure/endorsement, WSU may take a range of actions, including rescission of admission or dismissal from the program, depending on the nature of the concern.

For more information visit the special education background check requirement ([https://www.wichita.edu/sped\\_background\\_check/](https://www.wichita.edu/sped_background_check/))<sup>1</sup>.

**MEd or Endorsement in Special Education - Low Incidence Track**

Course	Title	Hours
<b>Required Core Courses</b>		
CI 784	Foundations of Education for Individuals with Exceptionalities	3
CI 742	Introduction to Teaching Strategies for Students with Severe/Multiple Disabilities	3
CI 749F	Practicum: Low-Incidence Learners <sup>2</sup>	3
CI 796	Family and Professional Collaboration	3
CI 812	Transition across Life Span	2
CI 818	Positive Behavior Supports for Students With Exceptionalities <sup>3</sup>	3
or CI 721	Fundamental Elements in Behavior Change and Specific Behavior Change Procedures	
or CLES 721	Fundamental Elements in Behavior Change and Specific Behavior Change Procedures	
CI 818A	Internship/Practicum: Positive Behavior Supports <sup>2</sup>	1
CI 820 & 820A	Advanced Teaching Strategies for Students with Severe and Multiple Disabilities and Internship/Practicum: Low-Incidence Learning Needs <sup>4</sup>	3
CI 822	Principles of Nondiscriminatory Assessment for Students With Exceptionalities	2
<b>Research Component</b>		
CLES 801	Introduction to Educational Research	3
or CI 723	Single Subject Design	
or CLES 723	Single Subject Design	
CI 862	Evidence-Based Inquiry: Capstone Project Proposal <sup>5</sup>	2
or CI 875	Master’s Thesis	
CI 863	Evidence-Based Inquiry: Capstone Project <sup>6</sup>	2

or CI 876	Master's Thesis
Total Credit Hours	30

<sup>1</sup> Link opens new window.

<sup>2</sup> No grade below B- (2.750) will count toward the degree.

<sup>3</sup> CI 818 and CI/CLES 721 must be taken with CI 818A. CLES 721 and CI 721 course options are only for students who are also completing the ABA Graduate Certificate program.

<sup>4</sup> These combinations must be taken together. No grade below B- (2.750) will count toward the degree.

<sup>5</sup> Requires completion of core courses and CLES 801 or CLES 723 or CI 723.

<sup>6</sup> Requires completion of CI 862 or CI 875.

*Note:* After successful completion of the first 9 credit hours, the candidate is eligible to apply to KSDE for a two-year provisional endorsement. A second two-year provisional may be applied for if the candidate has continued to make adequate progress in the program. Please contact the Licensure Office in College of Applied Studies Advising, 316-978-3300, for information on the licensure application to submit.

### Applied Learning

Students are required to complete an applied learning or research experience to graduate from programs in curriculum and instruction. The requirements can be met by completing either a master's thesis or capstone research project in which the emphasis is on applying professional practices to research and is directly linked to applied learning. In addition, students who graduate from the graduate program in special education must experience at least 135 hours of field experience/internship in special education classrooms.

## Certificate in Instructional Design in Professional Practice

### Admission

To be considered for admission to the program, applicants must meet the following:

1. A bachelor's degree from a regionally accredited institution or its overseas equivalent; and
2. A grade point average of at least 2.750 based upon the last 60 credit hours of coursework (or nearest semester or term break to this), including any postbachelor's graduate work. Students who do not meet the 2.750 grade point average requirement may be admitted to this category on probation if reasonable evidence exists to indicate their ability to perform satisfactorily in 800-level or above coursework.

Current graduate students of WSU should complete the Declaration of Intent to Pursue a Graduate Certificate form through the Graduate School website. The admission review faculty may request any of the listed admission requirements before rendering an admission decision the request.

### Program Requirements

The instructional design in professional practice graduate certificate (15 credit hours) is designed to provide students with the skills and knowledge needed to design and implement effective, efficient and engaging instruction, from assessing learners' needs to designing/developing appropriate materials and to evaluating instruction. Students will be able to apply learning theories, instructional design models and principles, and experiences gained through coursework to lead the instructional design process in diverse organizational settings.

Besides, this program not only allows students to earn a powerful career credential but also complete a significant portion of a full Master's of Education in learning and instructional design program.

In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

Course	Title	Hours
<b>Required Courses (courses already exist within the MEd in learning and instructional design)</b>		
CI 795	Change, Creativity and Innovation	3
CI 880	Learning Theory and Curriculum Design	3
CI 884	Inquiry Into Instructional Practice: Part 1	3
CI 885	Inquiry Into Instructional Practice: Part 2	3
CI 893	Instructional Leadership: Professionalism and Collaboration	3
Total Credit Hours		15

## Certificate in Interdisciplinary STEM Education

The interdisciplinary STEM education graduate certificate is designed for STEM professionals, educators and graduate students interested in designing and/or teaching an interdisciplinary STEM curriculum. Students in the program build interdisciplinary academic skills in context with an emphasis on real-world problem solving, critical thinking and career readiness. The curriculum is developed in a way that facilitates key features of effective interdisciplinary STEM curriculum preparation, induction and implementation including models and characteristics critical to quality curricula.

### Program Requirements

#### Background Check

Upon admission and prior to their first semester, all applicants admitted to this program must clear a criminal background check. There are two reasons for this requirement. First, it is part of the university's due diligence before placing students in field settings. Second, the check may alert applicants or students to issues that may subsequently affect their ability to work in their chosen field. In instances when a person's criminal history raises reasonable concerns that should be cleared to engage in the field experiences and/or subsequently obtain licensure/endorsement, WSU may take a range of actions, including rescission of admission or dismissal from the program, depending on the nature of the concern.

For information regarding this requirement, visit Advanced Programs (<https://wichita.edu/clesadvancedprograms/>)<sup>1</sup>.

#### Curriculum

The 12-credit-hour certificate includes 6 credit hours of STEM courses that may be chosen for an individualized pathway. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

Course	Title	Hours
CI 764	Interdisciplinary STEM Education: Entry Course	3
Select STEM courses for an individualized pathway		6

CI 867	Interdisciplinary STEM Education: Exit Course	3
Total Credit Hours		12

<sup>1</sup> Link opens new window.

## Certificate in Literacy

This program provides graduate level studies in literacy for educators who wish to:

1. Advance their knowledge and skills of teaching literacy in the classroom, and
2. Integrate literacy into all content areas.

It provides advanced study for teachers and educators seeking lead positions in buildings where literacy is a focus for federal legislation and state accreditation.

### Program Requirements

To meet the varied needs of elementary and secondary teachers, two strands are provided:

1. Early childhood/elementary, and
2. Middle level/secondary.

### Background Check

Upon admission and prior to their first semester, all applicants admitted to this program must clear a criminal background check. There are two reasons for this requirement. First, it is part of the university's due diligence before placing students in field settings. Second, the check may alert applicants or students to issues that may subsequently affect their ability to work in their chosen field. In instances when a person's criminal history raises reasonable concerns that should be cleared to engage in the field experiences and/or subsequently obtain licensure/endorsement, WSU may take a range of actions, including rescission of admission or dismissal from the program, depending on the nature of the concern.

For information regarding this requirement, visit: Advanced Programs (<https://wichita.edu/clesadvancedprograms/>)<sup>1</sup>.

### Curriculum

In each strand, students must take 15 credit hours of coursework:

Course	Title	Hours
<b>Required Courses Elementary (9 credit hours)</b>		
CI 705	Knowledge and Beliefs About Reading (Elementary)	3
CI 714	Reading Instruction and Assessment (Elementary )	3
CI 734	Literature-Based Reading Programs (Elementary)	3
Electives selected in consultation with program coordinator (6 credit hours)		6
Total Credit Hours		15

Course	Title	Hours
<b>Required Courses Secondary (9 credit hours)</b>		
CI 705	Knowledge and Beliefs About Reading	3
CI 714	Reading Instruction and Assessment	3
CI 615	Learning and Reading Strategies	3

Electives selected in consultation with program coordinator (6 credit hours)	6
Total Credit Hours	15

No more than 5 credit hours can be included that are graded *S/U*. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

For more information, please visit the certificate in literacy webpage (<https://wichita.edu/literacy/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

## Certificate in Mentoring and Coaching

### Admission

Students may be admitted to the program following:

1. A bachelor's degree from a regionally accredited institution; and
2. A grade point average of at least 2.750 based upon the last 60 credit hours of coursework (or nearest semester or term break to this), including any post bachelor's graduate work. Students who do not meet the 2.750 grade point average requirement may be admitted to this category on probation if reasonable evidence exists to indicate their ability to perform satisfactorily in 800-level or above coursework.

*Current WSU graduate students:* To apply for the certificate program, submit the Graduate School's Declaration of Intent to Pursue a Graduate Certificate form located on the Graduate School's webpage. With departmental approval, the student may then be admitted to the certificate program. All Graduate School and departmental admission requirements apply. International students may enroll in the certificate program but must ensure it complies with their visa requirements.

### Program Requirements

Students enrolled in the 12 credit hour certificate program are expected to take a variety of coursework with 6 credit hours of required courses and 6 credit hours of electives. A cumulative graduate grade point average of at least 3.000 for all courses comprising the certificate program is expected with no grades below C. Transfer hours are not accepted for this certificate program. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate. Students might be able to use certificate coursework toward a Master of Education in learning and instructional design (MEd in LID). The certificate's plan of study includes the following courses:

Course	Title	Hours
<b>Required Courses (6 credit hours)</b>		
CI 773	Mentoring and Coaching Transformational Relationships	3
CI 803	Mentoring and Coaching: Metacognitive Practice	3
<b>Electives (6 credit hours)</b>		<b>6</b>

6 credit hours of electives should be selected in coordination with graduate advisor. Potential areas of interest may include: instructional design, leadership, organization change, psychology and counseling.

Elective Courses could include:

CI 785	Instructional Design and Learning Management Systems (LMS)
CI 795	Change, Creativity and Innovation

CI 880	Learning Theory and Curriculum Design	
CI 881	Instructional Theory	
CI 893	Instructional Leadership: Professionalism and Collaboration	
Total Credit Hours		12

## Certificate in Online Learning and Educational Technology

To provide for the changing needs of learners in the area of educational technology, this program offers Information and Communication Technology (ICT) education to educators, trainers and professional developers who wish to advance their knowledge of information technology in education, integrate technology into classroom instruction or professional setting, and use technology for communication and professional productivity. Through core courses and electives, the certificate will provide ICT foundational knowledge and skills, ways of integrating ICT in educational and other professional settings, as well as opportunities to advance ICT knowledge and skills related to subject matter-specific topics.

### Admission

Students seeking graduate certificates must be admitted to Graduate School in a degree program or in nondegree Category A status. All Graduate School policies relative to admission criteria apply.

### Program Requirements

The educational technology graduate certificate is a 12-credit-hour program. The curriculum consists of 12 credit hours — 6 credit hours of required courses and 6 credit hours of electives. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

### Background Check

Upon admission and prior to their first semester, all applicants admitted to this program must clear a criminal background check. There are two reasons for this requirement. First, it is part of the university's due diligence before placing students in field settings. Second, the check may alert applicants or students to issues that may subsequently affect their ability to work in their chosen field. In instances when a person's criminal history raises reasonable concerns that should be cleared to engage in the field experiences and/or subsequently obtain licensure/endorsement, WSU may take a range of actions, including rescission of admission or dismissal from the program, depending on the nature of the concern.

For information regarding this requirement, visit: Advanced Programs (<https://wichita.edu/clesadvancedprograms/>)<sup>1</sup>.

### Curriculum

Course	Title	Hours
<b>Required Courses</b>		
CI 758	Nature of Technology and Educational Implications	3
CI 881	Instructional Theory	3
<b>Electives</b>		
Select 6 credit hours from the following:		6
CI 505	Science Technology and Society	
CI 780M	Technology in the Classroom: Mathematics	
CI 780S	Technology in the Classroom: Science	

CI 785	Instructional Design and Learning Management Systems (LMS)	
CI 787	Emerging Educational Technology	
CI 788	Multimedia Production	
Total Credit Hours		12

### Completion

Students completing the requirements for a graduate certificate program must submit the Graduate Plan of Study form and the Application for Degree form no later than the 20th day of the fall or spring semester, or the 10th day of the eight-week summer term when certificate completion is anticipated. A \$25 filing fee is required each time an Application for Degree or Graduate Certificate is submitted.

<sup>1</sup> Link opens new window.

## Sport Management Degrees and Areas of Specialization

The department of sport management offers courses of study leading to the Master of Education (MEd) in sport management.

### Programs in Sport Management

- MEd in Sport Management (p. 100)

### Courses in Sport Management

- Sport Management (SMGT) (p. 408)

## MEd in Sport Management

### Admission

Admission to the master's degree program in sport management is considered for students who have completed an earned undergraduate degree from a regionally accredited institution with a grade point average of 2.750 (4.000 system), in their last 60 credit hours. Candidate evaluations are based on one of two options:

1. GPA of at least 2.750 (4.000 system) in their last 60 credit hours and faculty evaluation based on letter of application, resume and three reference reports; or
2. GPA of at least 2.750 (4.000 system) in their last 60 credit hours, cumulative score for the verbal and quantitative sections of the Graduate Record Exam, and faculty evaluation based on letter of application, resume and three reference reports.

The program limits admissions to 30 students per year with a minimum score of 70 (out of 100 possible) based on the above admission criteria options. For more information, please contact the Graduate Coordinator, Dr. Mike Ross at [mike.ross@wichita.edu](mailto:mike.ross@wichita.edu).

### Program Requirements

The MEd program in sport management program requires 30 credit hours — 24 credit hours of coursework and a 6-credit hour internship. In addition, the program requires that all students pass a final written examination covering all required coursework during their final semester prior to graduation.

Course	Title	Hours
<b>Required Courses</b>		
SMGT 799	Mentoring and Networking in Sport	1
SMGT 800	Analytics and Decision Making In Sport	3
SMGT 801	Management In Sport	3
SMGT 803	Sport Marketing	3

SMGT 809	Sport Management Technology	2
SMGT 810	Sport Leadership and Socialization	3
SMGT 812	Ethical and Legal Issues in Sport	3
SMGT 822	Communication in Sport	3
SMGT 847	Internship	6
<b>Elective Courses</b>		
Select 3 credit hours from the following or consider other options in consultation with assigned advisor:		3
SMGT 511	Selling in the Sport Industry	
SMGT 520	Sport Tournament and Event Management	
SMGT 525	Sport Facility Management	
SMGT 540	Business Analytics in Sport	
SMGT 545	Sport Governance and Policy	
SMGT 552	Study Abroad in Sport and Entertainment	
SMGT 818	Psychology of Sport	
Total Credit Hours		30

**Applied Learning**

Students in the sport management (MEd) program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing SMGT 847.



# Business, W. Frank Barton School of

**Larisa Genin, dean**

**100 Clinton Hall • 316-WSU-3200**

W. Frank Barton School of Business Webpage (<http://wichita.edu/business/>)<sup>1</sup>

**John Perry, associate dean**

**Chris Broberg, associate dean, graduate studies in business**

## Departments

**Economics**, 316-978-3220 — Jen-Chi Cheng, *chairperson*; Philip Hersch, *graduate coordinator*

**Finance, Real Estate and Decision Sciences**, 316-978-3219 — Suhair (Sue) Abdinnour, *chairperson and graduate coordinator*, business analytics (MS); Mehmet Barut, *graduate coordinator*, management science and supply chain management (MS)

**Management**, 316-978-3214 — Masud Chand, *chairperson*; Gergana Markova, *graduate coordinator*, Human Resource Management (MHRM)

**Marketing**, 316-978-3367 — Stephen Porter, *chairperson*

**School of Accountancy**, 316-978-3215 — Gregory Merrill, *director*; Michael Flores, *graduate coordinator*

## Mission

The Barton School prepares students for lifelong learning and success in the global marketplace, advances the knowledge and practice of business, and supports economic growth through research, outreach and knowledge transfer.

## Vision

The Barton School strives to be internationally recognized as a model of research, knowledge transfer and applied business learning.

## Core Values

- Being student centered and business driven
- Fostering integrity and intellectual curiosity
- Celebrating the development of critical thinking, innovation and an entrepreneurial mindset
- Honoring diversity of culture, thought and experience

Graduate degree programs in the school lead to the Master of Business Administration (MBA), Executive Master of Business Administration (EMBA), Master of Accountancy (MACC), and the Master of Arts (MA) in applied economics, Master of Science (MS) in management science and supply chain management, Master of Science (MS) in business analytics, and Master of Human Resource Management (MHRM). The Barton School also offers seven certificates: enterprise systems and supply chain management, entrepreneurship and innovation, business analytics, business fundamentals, advanced business fundamentals, human resource management decision making, and human resource management skills.

<sup>1</sup> Link opens new window.

## Programs in the W. Frank Barton School of Business

- Master of Accountancy (p. 104)
  - MACC - Master of Accountancy (p. 104)
  - MACC - Master of Accountancy: Accounting Information Systems Concentration (p. 105)

- MACC - Master of Accountancy: Taxation Concentration (p. 106)
- Master of Business Administration (p. 107)
  - MBA - Master of Business Administration (p. 108)
  - MBA - Business Analytics and Information Management Concentration (p. 109)
  - MBA - Entrepreneurship and Innovation Concentration (p. 110)
  - MBA - Finance Concentration (p. 111)
  - MBA - Health Care Administration Concentration (p. 112)
  - MBA - Human Resource Management Concentration (p. 113)
  - MBA - Marketing Concentration (p. 115)
  - MBA - Supply Chain Management Concentration (p. 116)
  - MEM to MBA Program (p. 117)
  - MS in Management Science and Supply Chain Management to MBA Program (p. 117)
- Executive Master of Business Administration (p. 117)
- MA in Applied Economics (p. 118)
  - MA in Applied Economics (p. 118)
  - MA in Applied Economics - Data Analytics Concentration (p. 119)
  - MA in Applied Economics - Financial Economics Concentration (p. 120)
  - MA in Applied Economics - International Economics Concentration (p. 120)
- Master of Human Resource Management (p. 121)
- MS in Business Analytics (p. 121)
- MS in Management Science and Supply Chain Management (p. 123)
- Dual/Accelerated BBA to Master of Human Resource Management (p. 124)
- Dual/Accelerated BBA to MS in Management Science and Supply Chain Management (p. 124)

## Certificates in the W. Frank Barton School of Business

- Certificate in Advanced Business Fundamentals (p. 125)
- Certificate in Business Analytics (p. 125)
- Certificate in Business Fundamentals (p. 125)
- Certificate in Entrepreneurship and Innovation (p. 126)
- Certificate in Human Resource Management Decision Making (p. 126)
- Certificate in Human Resource Management Skills (p. 126)
- Certificate in Supply Chain Management (p. 127)

## Courses in the W. Frank Barton School of Business

- Accounting (ACCT) (p. 255)
- Business Analytics (BSAN) (p. 275)
- Business Law (BLAW) (p. 273)
- Decision Sciences (DS) (p. 320)
- Economics (ECON) (p. 322)
- Entrepreneurship (ENTR) (p. 337)
- Executive Master of Business Administration (EMBA) (p. 331)
- Finance (FIN) (p. 339)
- Human Resource Management (HRM) (p. 352)
- International Business (IB) (p. 354)
- Management (MGMT) (p. 372)

- Management Information Systems (MIS) (p. 373)
- Master of Business Administration (MBA) (p. 365)
- Marketing (MKT) (p. 374)
- Real Estate (RE) (p. 403)

## Master of Accountancy

The Master of Accountancy (MACC) program at Wichita State University is designed to prepare qualified candidates for careers as professional accountants in public practice, industry, government and nonprofit organizations. The program is based on strong preparation in general education courses with special emphasis on communication skills, and includes a broad exposure to the different aspects of business and management.

The School of Accountancy recognizes students may desire differing technical requirements to enter a diverse work environment. Two specialized concentrations are offered to complement the traditional emphasis: Accounting Information Systems (AIS) and Taxation.

### Programs in Master of Accountancy

- MACC - Master of Accountancy (p. 104)
- MACC - Master of Accountancy - Accounting Information Systems Concentration (p. 105)
- MACC - Master of Accountancy - Taxation Concentration (p. 106)

### Courses in Accounting

- Accounting (ACCT) (p. 255)

## MACC - Master of Accountancy

### Admission

Full admission to the MACC professional curriculum requires:

1. An undergraduate degree in accounting, or the functional equivalent of an undergraduate degree in accounting from an AACSB-accredited institution.
2. An overall grade point average (GPA) of 3.200 on a 4.000 scale.
3. A grade of *B* (3.000) or better in all undergraduate accounting courses.

Applicants not meeting these criteria will be required to take the GMAT and obtain a satisfactory score. A satisfactory GMAT score is considered to be in the 25th percentile or higher for each section and for the overall score.

International applicants may have to complete significant additional foundational coursework beyond what may appear on a student's transcript. This can include, but is not limited to, (re)taking business law, financial accounting, taxation, accounting information systems and auditing courses at Wichita State University.

### Program Requirements

Total degree requirements will vary and depend upon the specific course content of the undergraduate degree program. At a minimum, the candidate's program must total 30 graduate-level credit hours beyond the bachelor's degree, including 15 credit hours of accounting courses numbered 800 or above and a total of 21 credit hours in courses numbered 800 or above.<sup>1</sup>

In general, an undergraduate degree in business and an accounting major, equivalent to that offered at WSU is presumed. The following courses, or their graduate equivalents, must be included as part of

the MACC degree program if not covered in the student's bachelor's degree:

### Undergraduate Accounting/Business Curriculum

Course	Title	Hours
ACCT 210	Financial Accounting	3
ACCT 220	Managerial Accounting	3
ACCT 310	Financial Accounting and Reporting: Assets	3
ACCT 360	Accounting Information Systems	3
ACCT 410	Financial Accounting and Reporting: Equities	3
ACCT 420	Intermediate Cost Accounting	3
ACCT 430	Introduction to Federal Income Tax	3
ACCT 580	Data Analytics for Accountants	3
ACCT 610	Financial Accounting and Reporting: Special Entities and Complex Issues	3
ACCT 630	Taxation of Business Entities	3
ACCT 640	Principles of Auditing	3
BADM 161	Business Software: Word	1
BADM 162	Business Software: Excel	1
BADM 163	Business Software: Access and PowerPoint	1
Select one of the following:		3-6
BLAW 431	Legal Environment of Business	
BLAW 635 & BLAW 636	Business Law for Accountants I and Business Law for Accountants II	
DS 350	Introduction to Production and Operations Management	3
MIS 395	Management Information Systems	3
ECON 201	Principles of Macroeconomics	3
ECON 202	Principles of Microeconomics	3
ECON 231	Introductory Business Statistics	3
FIN 340	Financial Management I	3
MGMT 360	Principles of Management	3
IB 333	International Business	3
MGMT 681	Strategic Management	3
MKT 300	Marketing	3
MATH 111	College Algebra	3
MATH 144	Business Calculus	3
Total Credit Hours		75-78

### Master of Accountancy Curriculum

The following graduate-level coursework must be completed for a traditional MACC degree:

Course	Title	Hours
ACCT 815	Financial Accounting and Reporting: Contemporary Issues	3
ACCT 825	Management Control Systems	3
ACCT 835	Tax Research and Selected Topics	3

ACCT 840	Advanced Auditing	3
ACCT 860	Advanced Accounting Information Systems	3
Select graduate electives outside accounting <sup>1</sup>		9
Select other graduate electives (accounting or non-accounting) <sup>1</sup>		6
Total Credit Hours		30

*Note:* all electives must be taken from within the Barton School of Business.

<sup>1</sup> Electives must be selected to conform to AACSB standards for Master of Accountancy programs. MBA 802, MBA 803 and ACCT 801 are not eligible for the MACC elective credit. See the graduate coordinator of the School of Accountancy for more information.

### Applied Learning

Students in the MACC - Master of Accountancy program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing ACCT 825 Management Control Systems.

As part of this course, students are required to complete a semester-long nonprofit project using premium access tools, data, analyses and tax returns from Guidestar.org. This premium access, provided free to students, normally costs \$1,500 annually per person.

## MACC - Master of Accountancy: Accounting Information Systems Concentration

### Admission

Full admission to the MACC professional curriculum requires:

1. An undergraduate degree in accounting, or the functional equivalent of an undergraduate degree in accounting from an AACSB-accredited institution.
2. An overall grade point average (GPA) of 3.200 on a 4.000 scale.
3. A grade of *B* (3.000) or better in all undergraduate accounting courses.

Applicants not meeting these criteria will be required to take the GMAT and obtain a satisfactory score. A satisfactory GMAT score is considered to be in the 25th percentile or higher for each section and for the overall score.

International applicants may have to complete significant additional foundational coursework beyond what may appear on a student's transcript. This can include, but is not limited to, (re)taking business law, financial accounting, taxation, accounting information systems and auditing courses at Wichita State University.

### Program Requirements

Total degree requirements will vary and depend upon the specific course content of the undergraduate degree program. At a minimum, the candidate's program must total 30 graduate-level credit hours beyond the bachelor's degree, including 15 credit hours of accounting courses numbered 800 or above and a total of 21 credit hours in courses numbered 800 or above.<sup>1</sup>

In general, an undergraduate degree in business and an accounting major, equivalent to that offered at WSU is presumed. The following courses, or their graduate equivalents, must be included as part of

the MACC degree program if not covered in the student's bachelor's degree:

### Undergraduate Accounting/Business Curriculum

Course	Title	Hours
ACCT 210	Financial Accounting	3
ACCT 220	Managerial Accounting	3
ACCT 310	Financial Accounting and Reporting: Assets	3
ACCT 360	Accounting Information Systems	3
ACCT 410	Financial Accounting and Reporting: Equities	3
ACCT 420	Intermediate Cost Accounting	3
ACCT 430	Introduction to Federal Income Tax	3
ACCT 580	Data Analytics for Accountants	3
ACCT 610	Financial Accounting and Reporting: Special Entities and Complex Issues	3
ACCT 630	Taxation of Business Entities	3
ACCT 640	Principles of Auditing	3
BADM 161	Business Software: Word	1
BADM 162	Business Software: Excel	1
BADM 163	Business Software: Access and PowerPoint	1
Select one of the following:		3-6
BLAW 431	Legal Environment of Business	
BLAW 635 & BLAW 636	Business Law for Accountants I and Business Law for Accountants II	
DS 350	Introduction to Production and Operations Management	3
MIS 395	Management Information Systems	3
ECON 201	Principles of Macroeconomics	3
ECON 202	Principles of Microeconomics	3
ECON 231	Introductory Business Statistics	3
FIN 340	Financial Management I	3
MGMT 360	Principles of Management	3
IB 333	International Business	3
MGMT 681	Strategic Management	3
MKT 300	Marketing	3
MATH 111	College Algebra	3
MATH 144	Business Calculus	3
Total Credit Hours		75-78

### Accounting Information Systems

Students electing a concentration in accounting information systems (AIS) must take the following courses:

Course	Title	Hours
<b>Accounting Core Courses</b>		
ACCT 815	Financial Accounting and Reporting: Contemporary Issues	3
ACCT 825	Management Control Systems	3

ACCT 835	Tax Research and Selected Topics	3
ACCT 840	Advanced Auditing	3
ACCT 860	Advanced Accounting Information Systems	3
<b>Additional Courses</b>		
Select two 600- or 800-level MIS courses		6
Select graduate electives, including 3 credit hours outside of accounting <sup>1</sup>		9
Total Credit Hours		30

*Note:* all electives must be taken from within the Barton School of Business.

<sup>1</sup> Electives must be selected to conform to AACSB standards for Master of Accountancy programs. MBA 802, MBA 803 and ACCT 801 are not eligible for the MACC elective credit. See the graduate coordinator of the School of Accountancy for more information.

### Applied Learning

Students in the MACC - Master of Accountancy: accounting information systems concentration are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing ACCT 825 Management Control Systems.

As part of this course, students are required to complete a semester-long nonprofit project using premium access tools, data, analyses and tax returns from Guidestar.org. This premium access, provided free to students, normally costs \$1,500 annually per person.

## MACC - Master of Accountancy: Taxation Concentration

### Admission

Full admission to the MACC professional curriculum requires:

1. An undergraduate degree in accounting, or the functional equivalent of an undergraduate degree in accounting from an AACSB-accredited institution.
2. An overall grade point average (GPA) of 3.200 on a 4.000 scale.
3. A grade of *B* (3.000) or better in all undergraduate accounting courses.

Applicants not meeting these criteria will be required to take the GMAT and obtain a satisfactory score. A satisfactory GMAT score is considered to be in the 25th percentile or higher for each section and for the overall score.

International applicants may have to complete significant additional foundational coursework beyond what may appear on a student's transcript. This can include, but is not limited to, (re)taking business law, financial accounting, taxation, accounting information systems and auditing courses at Wichita State University.

### Program Requirements

Total degree requirements will vary and depend upon the specific course content of the undergraduate degree program. At a minimum, the candidate's program must total 30 graduate-level credit hours beyond the bachelor's degree, including 15 credit hours of accounting courses numbered 800 or above and a total of 21 credit hours in courses numbered 800 or above.<sup>1</sup>

In general, an undergraduate degree in business and an accounting major, equivalent to that offered at WSU is presumed. The following

courses, or their graduate equivalents, must be included as part of the MACC degree program if not covered in the student's bachelor's degree:

### Undergraduate Accounting/Business Curriculum

Course	Title	Hours
ACCT 210	Financial Accounting	3
ACCT 220	Managerial Accounting	3
ACCT 310	Financial Accounting and Reporting: Assets	3
ACCT 360	Accounting Information Systems	3
ACCT 410	Financial Accounting and Reporting: Equities	3
ACCT 420	Intermediate Cost Accounting	3
ACCT 430	Introduction to Federal Income Tax	3
ACCT 580	Data Analytics for Accountants	3
ACCT 610	Financial Accounting and Reporting: Special Entities and Complex Issues	3
ACCT 630	Taxation of Business Entities	3
ACCT 640	Principles of Auditing	3
BADM 161	Business Software: Word	1
BADM 162	Business Software: Excel	1
BADM 163	Business Software: Access and PowerPoint	1
Select one of the following:		3-6
BLAW 431	Legal Environment of Business	
BLAW 635 & BLAW 636	Business Law for Accountants I and Business Law for Accountants II	
DS 350	Introduction to Production and Operations Management	3
MIS 395	Management Information Systems	3
ECON 201	Principles of Macroeconomics	3
ECON 202	Principles of Microeconomics	3
ECON 231	Introductory Business Statistics	3
FIN 340	Financial Management I	3
MGMT 360	Principles of Management	3
IB 333	International Business	3
MGMT 681	Strategic Management	3
MKT 300	Marketing	3
MATH 111	College Algebra	3
MATH 144	Business Calculus	3
Total Credit Hours		75-78

### Taxation

Students electing a concentration in taxation must take the following courses:

Course	Title	Hours
<b>Accounting Core Courses</b>		
ACCT 815	Financial Accounting and Reporting: Contemporary Issues	3
ACCT 825	Management Control Systems	3

ACCT 835	Tax Research and Selected Topics	3
ACCT 840	Advanced Auditing	3
ACCT 860	Advanced Accounting Information Systems	3
<b>Additional Courses</b>		
ACCT 830	Taxation of Business Entities - Advanced Topics	3
ACCT 831	Taxation of Estates and Trusts	3
Select graduate electives, all outside of accounting <sup>1</sup>		9
Total Credit Hours		30

*Note:* all electives must be taken from within the Barton School of Business.

<sup>1</sup> Electives must be selected to conform to AACSB standards for Master of Accountancy programs. MBA 802, MBA 803 and ACCT 801 are not eligible for the MACC elective credit. See the graduate coordinator of the School of Accountancy for more information.

### Applied Learning

Students in the MACC - Master of Accountancy: taxation concentration program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing ACCT 825 Management Control Systems.

As part of this course, students are required to complete a semester-long nonprofit project using premium access tools, data, analyses and tax returns from Guidestar.org. This premium access, provided free to students, normally costs \$1,500 annually per person.

## Master of Business Administration

The Barton School of Business offers the Master of Business Administration (MBA) through faculty in the accounting; economics; finance, real estate and decision sciences; management and marketing departments, as well as in other colleges of the university. The MBA program is designed to prepare men and women for responsible positions of professional leadership in business, government, health-related organizations and other institutions. The program concentrates on general management, with particular attention given to developing within the student an understanding of the organization as an integrated system. Areas of concentration are available for those students wishing to focus their elective coursework in a specialized area. Concentration areas currently available are business analytics and information management, entrepreneurship and innovation, finance, health care administration, human resource management, marketing, and supply chain management.

Classes are taken for graduate credit and all of the courses are offered in the evening.

### Policies

1. All incoming MBA students must attend an orientation session, which includes an introduction to the philosophy of graduate business education, development of networking skills, discussions about the history of the Barton School and the MBA program, and an overview of success strategies for MBA students. Only after completion of the orientation is a student considered for full standing in the MBA program.
2. A candidate's individual plan of study must be approved by the director and submitted to the Graduate School for final approval.

This plan must be filed within a month of the completion of 12 credit hours of graduate work.

3. All candidates must complete 36 credit hours of 800-level courses including:

Course	Title	Hours
ACCT 801	Managerial Accounting	3
DS 850	Operations Management	3
ECON 804	Managerial Economics	3
FIN 850	Managerial Finance	3
MGMT 803	Business Decision Making and Analysis	3
or MKT 803	Marketing Analysis	
MGMT 862	Organizational Behavior	3
MGMT 885	Advanced Strategic Management	3
MKT 801	Marketing Management	3
MIS 874	Management Information Systems	3
IB 836	International Business and Competitiveness	3
BLAW 810	Law and Ethics for Business	3
And 3 credit hours of electives which must be at the 700–800 level		3
Total Credit Hours		36

4. In addition to the coursework requirements, all students are required to complete MBA 799 Professional Development/360 in their first year of the MBA program.

### Additional Policies

Graduates of the WSU Master of Engineering Management (MEM) and the WSU Master of Science in Management Science and Supply Chain Management (MSSCM) may be allowed to use up to 12 credit hours from the technical electives taken from the WSU MBA courses if they enroll in the Master of Business Administration program.

The total credit hours required of students and the level at which they begin participation in the MBA program depend on their academic preparation. Students without a background in business may be required to take up to 6 credit hours of undergraduate prerequisite coursework, and may also be required to complete up to 9 credit hours of graduate-level preparatory coursework that will count toward the degree. The total number of credit hours required for completion of an MBA therefore ranges from 36 to 45, depending on the student's background.

### Concentrations in the Master of Business Administration Degree Program

The MBA degree program is a general management degree equipping students with an understanding of organizations as integrated systems. Within the program the curriculum provides knowledge across organizational functions. Students may wish to focus their elective coursework in a specific area of study to enhance their general organizational knowledge base by selecting a concentration from the following options provided in the MBA program.

- MBA - Master of Business Administration (p. 108)
- MBA - Business Analytics and Information Management Concentration (p. 109)
- MBA - Entrepreneurship and Innovation Concentration (p. 110)
- MBA - Finance Concentration (p. 111)
- MBA - Health Care Administration Concentration (p. 112)
- MBA - Human Resource Management Concentration (p. 113)
- MBA - Marketing Concentration (p. 115)

- MBA - Supply Chain Management Concentration (p. 116)
- MEM to MBA Program (p. 117)
- MS in Management Science and Supply Chain Management to MBA Program (p. 117)

### Courses in Master of Business Administration

- Master of Business Administration (MBA) (p. 365)

## MBA - Master of Business Administration

### Admission

Admission to the MBA program is granted to students who show high promise of success in postgraduate business study and who hold bachelor's degrees from regionally accredited institutions.

Previous academic training in business is not required for admission to the MBA program. Students may have backgrounds in such diverse fields as engineering, liberal arts, education and health related areas. The specific content of a student's previous education is less important than the evidence that the student has sound scholarship, strong personal motivation, and the ability to develop the skills necessary to assume positions of leadership.

Admissions decisions are based on the following:

1. Graduate Management Admission Test/Graduate Record Examination (GMAT/GRE) scores — overall score and component (i.e., verbal, quantitative and analytical writing) scores are evaluated. The GMAT/GRE must have been taken within the last six years;<sup>1</sup>
2. Personal Goals essay that clearly articulates the applicant's reasons for seeking admission (500 words maximum);
3. Two reference forms completed by faculty, employer or suitable referee;
4. Current resume (career-based work experience is desirable but not required); and
5. International students are required to have a minimum score of 570 (paper-based), or 88 (internet-based) on the Test of English as a Foreign Language, or an overall band score of 7.0 on the IELTS, or a score of 65 on the PTE-Academic.

Final admission of qualified applicants may be based on space available in the MBA program.

Applications for degree admission are reviewed twice a year, in the fall and spring. Deadlines for submitting applications to the Graduate School are July 1 for consideration for fall admission and December 1 for spring admission. International applicants living outside the United States must submit their applications by April 1 for fall admission consideration and August 1 for spring admission consideration. Applicants who apply after these deadlines are considered in the order in which their completed application materials are received.

<sup>1</sup> GMAT exceptions:

- 3 years or more of managerial work experience, evaluated by the Office of Graduate Studies in Business; or
- WSU graduate with a GPA of 3.500 or higher in the last 60 credit hours; or
- Business degree from an AACSB accredited school and a GPA of 3.500 or higher in the last 60 credit hours; or
- A U.S. master's degree or equivalent.

### Advanced Standing

Students with strong backgrounds in business administration may be granted advanced standing in the MBA program through equivalent credit for background preparatory courses for which a minimum grade of C was received in an undergraduate or graduate program. Most students entitled to such credit hold bachelor's degrees in business administration from accredited institutions.

Students may be granted equivalent credit for any or all of the preparatory courses, depending on the depth of their undergraduate or previous graduate preparation. The MBA program may consist of as few as 36 credit hours for students who have no deficiencies in prerequisites and who receive equivalent credit for all of the background fundamentals.

### Students Not Receiving Advanced Standing

Students with bachelor's degrees in nonbusiness fields usually will not have backgrounds warranting the granting of advanced standing through equivalency credit. There are some exceptions. Some students, for example, may have had enough coursework in economics or statistics to be granted credit for these courses. Determination regarding equivalency credit will be made following admission to the program. A minimum grade of C (2.000) or better is required for the prerequisites MATH 144 and ECON 231.

### General MBA Course Requirements

Course	Title	Hours
<b>Prerequisites</b> <sup>1</sup>		
MATH 144	Business Calculus	
ECON 231	Introductory Business Statistics	
<b>Preparatory Courses</b> <sup>2</sup>		
MBA 802	Fundamentals of Accounting	
MBA 803	Fundamentals of Finance	
MBA 804	Marketing Basics	
MBA 805	Management Basics	
ECON 811	Analysis of Macro-Economic Theory	
ECON 812	Analysis of Micro-Economic Theory	
<b>Required Courses</b>		
ACCT 801	Managerial Accounting	3
BLAW 810	Law and Ethics for Business	3
DS 850	Operations Management	3
ECON 804	Managerial Economics (taken within first two semesters of admission)	3
FIN 850	Managerial Finance	3
IB 836	International Business and Competitiveness	3
MBA 799	Professional Development/360 (taken in the first year of the program)	0
MKT 803	Marketing Analysis (taken within first two semesters of admission)	3
or MGMT 803	Business Decision Making and Analysis	
MGMT 862	Organizational Behavior	3
MGMT 885	Advanced Strategic Management (taken during last semester)	3
MKT 801	Marketing Management	3
MIS 874	Management Information Systems	3

Select an elective at the 700-800 level only	3
Total Credit Hours	36

<sup>1</sup> These courses are to be taken only if a specific deficiency exists.

<sup>2</sup> With approval of the program director, equivalent credit may be granted for courses of equal content taken in an undergraduate or graduate program. See Advanced Standing section above.

### Applied Learning

Students in the MBA program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing one of the two graduate courses: MKT 803/MGMT 803 or MIS 874. These courses provide opportunities to gain applied learning experiences through projects.

## MBA - Business Analytics and Information Management Concentration

### Admission

Admission to the MBA program is granted to students who show high promise of success in postgraduate business study and who hold bachelor's degrees from regionally accredited institutions.

Previous academic training in business is not required for admission to the MBA program. Students may have backgrounds in such diverse fields as engineering, liberal arts, education and health related areas. The specific content of a student's previous education is less important than the evidence that the student has sound scholarship, strong personal motivation, and the ability to develop the skills necessary to assume positions of leadership.

Admission decisions are based on the following:

1. Graduate Management Admission Test/Graduate Record Examination (GMAT/GRE) scores — overall score and component (i.e., verbal, quantitative and analytical writing) scores are evaluated. The GMAT/GRE must have been taken within the last six years;<sup>1</sup>
2. Personal Goals essay that clearly articulates the applicant's reasons for seeking admission (500 words maximum);
3. Two reference forms completed by faculty, employer or suitable referee;
4. Current resume (career-based work experience is desirable but not required); and
5. International students are required to have a minimum score of 570 (paper-based), or 88 (internet-based) on the Test of English as a Foreign Language, or an overall band score of 7.0 on the IELTS, or a score of 65 on the PTE-Academic.

Final admission of qualified applicants may be based on space available in the MBA program.

Applications for degree admission are reviewed twice a year, in the fall and spring. Deadlines for submitting applications to the Graduate School are July 1 for consideration for fall admission and December 1 for spring admission. International applicants living outside the United States must submit their applications by April 1 for fall admission consideration and August 1 for spring admission consideration. Applicants who apply after these deadlines are considered in the order in which their completed application materials are received.

<sup>1</sup> GMAT exceptions:

- Three years or more of managerial work experience, evaluated by the Office of Graduate Studies in Business; or
- WSU graduate with a GPA of 3.500 or higher in the last 60 credit hours; or
- Business degree from an AACSB accredited school and a GPA of 3.500 or higher in the last 60 credit hours; or
- A U.S. master's degree or equivalent.

### Advanced Standing

Students with strong backgrounds in business administration may be granted advanced standing in the MBA program through equivalent credit for background preparatory courses for which a minimum grade of C was received in an undergraduate or graduate program. Most students entitled to such credit hold bachelor's degrees in business administration from accredited institutions.

Students may be granted equivalent credit for any or all of the preparatory courses, depending on the depth of their undergraduate or previous graduate preparation. The MBA program may consist of as few as 36 credit hours for students who have no deficiencies in prerequisites and who receive equivalent credit for all of the background fundamentals.

### Students Not Receiving Advanced Standing

Students with bachelor's degrees in nonbusiness fields usually will not have backgrounds warranting the granting of advanced standing through equivalency credit. There are some exceptions. Some students, for example, may have had enough coursework in economics or statistics to be granted credit for these courses. Determination regarding equivalency credit will be made following admission to the program. A minimum grade of C (2.000) or better is required for the prerequisites MATH 144 and ECON 231.

### MBA Course Prerequisites

Course	Title	Hours
<b>Prerequisites <sup>1</sup></b>		
MATH 144	Business Calculus	
ECON 231	Introductory Business Statistics	
<b>Preparatory Courses <sup>2</sup></b>		
MBA 802	Fundamentals of Accounting	
MBA 803	Fundamentals of Finance	
MBA 804	Marketing Basics	
MBA 805	Management Basics	
ECON 811	Analysis of Macro-Economic Theory	
ECON 812	Analysis of Micro-Economic Theory	

<sup>1</sup> These courses are to be taken only if a specific deficiency exists.

<sup>2</sup> With approval of the program director, equivalent credit may be granted for courses of equal content taken in an undergraduate or graduate program. See Advanced Standing section above.

### MBA – Business Analytics and Information Management

The MBA with business analytics and information management concentration is designed to provide graduate students with knowledge and skills to effectively analyze large amounts of corporate data and information to support decision making and business performance management. This concentration aims to supplement the MBA core courses that discuss how managers and executives make their decisions in different business functions. To make such decisions, it is imperative that managers have the skills and knowledge to acquire appropriate

information and transform it to actionable tactics and strategies. Applications of business analytics include but are not limited to, modeling the impact of advertising on sales, predicting stock returns based on historical data, differentiating among customers based on credit risk, and optimizing customer loyalty programs and inventory. The concentration will train managers to develop and maintain a culture of evidence/fact based decision making in the organization. The curriculum also aims to bridge the knowledge gaps between IT and non-IT workforces.

The following is a list of the required courses in common with the general MBA degree:

Course	Title	Hours
<b>Required Courses for All MBA Degrees</b>		
MKT 803 or MGMT 803	Marketing Analysis (taken within first two semesters of admission) Business Decision Making and Analysis	3
BLAW 810	Law and Ethics for Business	3
FIN 850	Managerial Finance	3
MGMT 862	Organizational Behavior	3
MGMT 885	Advanced Strategic Management (taken during last semester)	3
MBA 799	Professional Development/360 (taken in the first year of the program)	0
<b>Required for Concentration</b>		
ECON 804	Managerial Economics (taken within first two semesters of admission)	3
ACCT 801	Managerial Accounting	3
MKT 801	Marketing Management	3
DS 850	Operations Management	3
MIS 750	Business Intelligence and Analytics	3
MIS 874	Management Information Systems	3
MIS 884	Database Planning & Management	3
Total Credit Hours		36

### Applied Learning

Students in the MBA program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing two core graduate courses: MKT 803/MGMT 803 and MIS 874. These courses provide opportunities to gain applied learning experiences through projects.

## MBA - Entrepreneurship and Innovation Concentration

### Admission

Admission to the MBA program is granted to students who show high promise of success in postgraduate business study and who hold bachelor's degrees from regionally accredited institutions.

Previous academic training in business is not required for admission to the MBA program. Students may have backgrounds in such diverse fields as engineering, liberal arts, education and health related areas. The specific content of a student's previous education is less important than the evidence that the student has sound scholarship, strong personal motivation, and the ability to develop the skills necessary to assume positions of leadership.

Admission decisions are based on the following:

1. Graduate Management Admission Test/Graduate Record Examination (GMAT/GRE) scores — overall score and component (i.e., verbal, quantitative and analytical writing) scores are evaluated. The GMAT/GRE must have been taken within the last six years;<sup>1</sup>
2. Personal Goals essay that clearly articulates the applicant's reasons for seeking admission (500 words maximum);
3. Two reference forms completed by faculty, employer or suitable referee;
4. Current resume (career-based work experience is desirable but not required); and
5. International students are required to have a minimum score of 570 (paper-based), or 88 (internet-based) on the Test of English as a Foreign Language, or an overall band score of 7.0 on the IELTS, or a score of 65 on the PTE-Academic.

Final admission of qualified applicants may be based on space available in the MBA program.

Applications for degree admission are reviewed twice a year, in the fall and spring. Deadlines for submitting applications to the Graduate School are July 1 for consideration for fall admission and December 1 for spring admission. International applicants living outside the United States must submit their applications by April 1 for fall admission consideration and August 1 for spring admission consideration. Applicants who apply after these deadlines are considered in the order in which their completed application materials are received.

### <sup>1</sup> GMAT exceptions:

- Three years or more of managerial work experience, evaluated by the Office of Graduate Studies in Business; or
- WSU graduate with a GPA of 3.500 or higher in the last 60 credit hours; or
- Business degree from an AACSB accredited school and a GPA of 3.500 or higher in the last 60 credit hours; or
- A U.S. master's degree or equivalent.

### Advanced Standing

Students with strong backgrounds in business administration may be granted advanced standing in the MBA program through equivalent credit for background preparatory courses for which a minimum grade of C was received in an undergraduate or graduate program. Most students entitled to such credit hold bachelor's degrees in business administration from accredited institutions.

Students may be granted equivalent credit for any or all of the preparatory courses, depending on the depth of their undergraduate or previous graduate preparation. The MBA program may consist of as few as 36 credit hours for students who have no deficiencies in prerequisites and who receive equivalent credit for all of the background fundamentals.

### Students Not Receiving Advanced Standing

Students with bachelor's degrees in nonbusiness fields usually will not have backgrounds warranting the granting of advanced standing through equivalency credit. There are some exceptions. Some students, for example, may have had enough coursework in economics or statistics to be granted credit for these courses. Determination regarding equivalency credit will be made following admission to the program. A minimum grade of C (2.000) or better is required for the prerequisites MATH 144 and ECON 231.

**MBA Course Prerequisites**

Course	Title	Hours
<b>Prerequisites <sup>1</sup></b>		
MATH 144	Business Calculus	
ECON 231	Introductory Business Statistics	
<b>Preparatory Courses <sup>2</sup></b>		
MBA 802	Fundamentals of Accounting	
MBA 803	Fundamentals of Finance	
MBA 804	Marketing Basics	
MBA 805	Management Basics	
ECON 811	Analysis of Macro-Economic Theory	
ECON 812	Analysis of Micro-Economic Theory	

<sup>1</sup> These courses are to be taken only if a specific deficiency exists.

<sup>2</sup> With approval of the program director, equivalent credit may be granted for courses of equal content taken in an undergraduate or graduate program. See Advanced Standing section above.

**MBA – Entrepreneurship and Innovation**

The entrepreneurship and innovation concentration provides the foundation for developing one's own business, moving into a leadership role in a family business, or managing innovation and new business formation in a corporate setting. Building on the MBA curriculum, the entrepreneurship concentration enhances the ability to cope with the full range of issues in evaluating markets, developing business ideas and innovative business models, new product and process innovation, and commercializing technologies. The specialized knowledge helps students understand the business startup process and related managerial issues.

The following is the list of required courses in common with the general MBA:

Course	Title	Hours
<b>Required Courses for All MBA Degrees</b>		
MKT 803	Marketing Analysis (taken within first two semesters of admission)	3
or MGMT 803	Business Decision Making and Analysis	
BLAW 810	Law and Ethics for Business	3
FIN 850	Managerial Finance	3
MGMT 862	Organizational Behavior	3
MGMT 885	Advanced Strategic Management (taken during last semester)	3
MBA 799	Professional Development/360 (taken in the first year of the program)	0
<b>Required for the Concentration</b>		
ECON 804	Managerial Economics (taken within first two semesters of admission)	3
ACCT 801	Managerial Accounting	3
MKT 801	Marketing Management	3
IB 836	International Business and Competitiveness	3
ENTR 705	Technology Entrepreneurship	3
ENTR 706	Seminar in New Product and Technology Development	3

ENTR 865	Entrepreneurship, Creativity and Innovation	3
Total Credit Hours		36

**Applied Learning**

Students in the MBA program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing two core graduate courses: MKT 803/MGMT 803 and MIS 874. These courses provide opportunities to gain applied learning experiences through projects.

**MBA - Finance Concentration****Admission**

Admission to the MBA program is granted to students who show high promise of success in postgraduate business study and who hold bachelor's degrees from regionally accredited institutions.

Previous academic training in business is not required for admission to the MBA program. Students may have backgrounds in such diverse fields as engineering, liberal arts, education and health related areas. The specific content of a student's previous education is less important than the evidence that the student has sound scholarship, strong personal motivation, and the ability to develop the skills necessary to assume positions of leadership.

Admission decisions are based on the following:

1. Graduate Management Admission Test/Graduate Record Examination (GMAT/GRE) scores — overall score and component (i.e., verbal, quantitative and analytical writing) scores are evaluated. The GMAT/GRE must have been taken within the last six years;<sup>1</sup>
2. Personal Goals essay that clearly articulates the applicant's reasons for seeking admission (500 words maximum);
3. Two reference forms completed by faculty, employer or suitable referee;
4. Current resume (career-based work experience is desirable but not required); and
5. International students are required to have a minimum score of 570 (paper-based), or 88 (internet-based) on the Test of English as a Foreign Language, or an overall band score of 7.0 on the IELTS, or a score of 65 on the PTE-Academic.

Final admission of qualified applicants may be based on space available in the MBA program.

Applications for degree admission are reviewed twice a year, in the fall and spring. Deadlines for submitting applications to the Graduate School are July 1 for consideration for fall admission and December 1 for spring admission. International applicants living outside the United States must submit their applications by April 1 for fall admission consideration and August 1 for spring admission consideration. Applicants who apply after these deadlines are considered in the order in which their completed application materials are received.

<sup>1</sup> GMAT exceptions:

- Three years or more of managerial work experience, evaluated by the Office of Graduate Studies in Business; or
- WSU graduate with a GPA of 3.500 or higher in the last 60 credit hours; or
- Business degree from an AACSB accredited school and a GPA of 3.500 or higher in the last 60 credit hours; or
- A U.S. master's degree or equivalent.

### Advanced Standing

Students with strong backgrounds in business administration may be granted advanced standing in the MBA program through equivalent credit for background preparatory courses for which a minimum grade of C was received in an undergraduate or graduate program. Most students entitled to such credit hold bachelor's degrees in business administration from accredited institutions.

Students may be granted equivalent credit for any or all of the preparatory courses, depending on the depth of their undergraduate or previous graduate preparation. The MBA program may consist of as few as 36 credit hours for students who have no deficiencies in prerequisites and who receive equivalent credit for all of the background fundamentals.

### Students Not Receiving Advanced Standing

Students with bachelor's degrees in nonbusiness fields usually will not have backgrounds warranting the granting of advanced standing through equivalency credit. There are some exceptions. Some students, for example, may have had enough coursework in economics or statistics to be granted credit for these courses. Determination regarding equivalency credit will be made following admission to the program. A minimum grade of C (2.000) or better is required for the prerequisites MATH 144 and ECON 231.

### MBA Course Prerequisites

Course	Title	Hours
<b>Prerequisites <sup>1</sup></b>		
MATH 144	Business Calculus	
ECON 231	Introductory Business Statistics	
<b>Preparatory Courses <sup>2</sup></b>		
MBA 802	Fundamentals of Accounting	
MBA 803	Fundamentals of Finance	
MBA 804	Marketing Basics	
MBA 805	Management Basics	
ECON 811	Analysis of Macro-Economic Theory	
ECON 812	Analysis of Micro-Economic Theory	

<sup>1</sup> These courses are to be taken only if a specific deficiency exists.

<sup>2</sup> With approval of the program director, equivalent credit may be granted for courses of equal content taken in an undergraduate or graduate program. See Advanced Standing section above.

### MBA – Finance

The MBA finance concentration provides students with the specialized knowledge necessary for understanding organizational financial management issues. The curriculum blends theory with applied business practice to prepare students for the varied activities involved in financial management issues. Students also gain experience with many different financial analysis tools that facilitate problem solving. Advanced courses involve cases and/or projects requiring computer modeling and analysis.

The following is a list of the required courses in common with the general MBA degree:

Course	Title	Hours
<b>Required Courses for All MBA Degrees</b>		
MKT 803	Marketing Analysis (taken within first two semesters of admission)	3
or MGMT 803	Business Decision Making and Analysis	

BLAW 810	Law and Ethics for Business	3
FIN 850	Managerial Finance	3
MGMT 862	Organizational Behavior	3
MGMT 885	Advanced Strategic Management (taken during last semester)	3
MBA 799	Professional Development/360 (taken in the first year of the program)	0
<b>Required for Concentration</b>		
ECON 804	Managerial Economics (taken within first two semesters of admission)	3
ACCT 801	Managerial Accounting	3
MKT 801	Marketing Management	3
DS 850	Operations Management	3
FIN 860	Advanced Managerial Finance	3
FIN 865	Advanced Investment Analysis and Portfolio Management	3
MIS 874	Management Information Systems	3
Total Credit Hours		36

### Applied Learning

Students in the MBA program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing two core graduate courses: MKT 803/MGMT 803 and MIS 874. These courses provide opportunities to gain applied learning experiences through projects.

## MBA - Health Care Administration Concentration

### Admission

Admission to the MBA program is granted to students who show high promise of success in postgraduate business study and who hold bachelor's degrees from regionally accredited institutions.

Previous academic training in business is not required for admission to the MBA program. Students may have backgrounds in such diverse fields as engineering, liberal arts, education and health related areas. The specific content of a student's previous education is less important than the evidence that the student has sound scholarship, strong personal motivation, and the ability to develop the skills necessary to assume positions of leadership.

Admission decisions are based on the following:

1. Graduate Management Admission Test/Graduate Record Examination (GMAT/GRE) scores — overall score and component (i.e., verbal, quantitative and analytical writing) scores are evaluated. The GMAT/GRE must have been taken within the last six years;<sup>1</sup>
2. Personal Goals essay that clearly articulates the applicant's reasons for seeking admission (500 words maximum);
3. Two reference forms completed by faculty, employer or suitable referee;
4. Current resume (career-based work experience is desirable but not required); and
5. International students are required to have a minimum score of 570 (paper-based), or 88 (internet-based) on the Test of English as a

Foreign Language, or an overall band score of 7.0 on the IELTS, or a score of 65 on the PTE-Academic.

Final admission of qualified applicants may be based on space available in the MBA program.

Applications for degree admission are reviewed twice a year, in the fall and spring. Deadlines for submitting applications to the Graduate School are July 1 for consideration for fall admission and December 1 for spring admission. International applicants living outside the United States must submit their applications by April 1 for fall admission consideration and August 1 for spring admission consideration. Applicants who apply after these deadlines are considered in the order in which their completed application materials are received.

#### <sup>1</sup> GMAT exceptions:

- Three years or more of managerial work experience, evaluated by the Office of Graduate Studies in Business; or
- WSU graduate with a GPA of 3.500 or higher in the last 60 credit hours; or
- Business degree from an AACSB accredited school and a GPA of 3.500 or higher in the last 60 credit hours; or
- A U.S. master's degree or equivalent.

### Advanced Standing

Students with strong backgrounds in business administration may be granted advanced standing in the MBA program through equivalent credit for background preparatory courses for which a minimum grade of C was received in an undergraduate or graduate program. Most students entitled to such credit hold bachelor's degrees in business administration from accredited institutions.

Students may be granted equivalent credit for any or all of the preparatory courses, depending on the depth of their undergraduate or previous graduate preparation. The MBA program may consist of as few as 36 credit hours for students who have no deficiencies in prerequisites and who receive equivalent credit for all of the background fundamentals.

### Students Not Receiving Advanced Standing

Students with bachelor's degrees in nonbusiness fields usually will not have backgrounds warranting the granting of advanced standing through equivalency credit. There are some exceptions. Some students, for example, may have had enough coursework in economics or statistics to be granted credit for these courses. Determination regarding equivalency credit will be made following admission to the program. A minimum grade of C (2.000) or better is required for the prerequisites MATH 144 and ECON 231.

### MBA Course Prerequisites

Course	Title	Hours
<b>Prerequisites <sup>1</sup></b>		
MATH 144	Business Calculus	
ECON 231	Introductory Business Statistics	
<b>Preparatory Courses <sup>2</sup></b>		
MBA 802	Fundamentals of Accounting	
MBA 803	Fundamentals of Finance	
MBA 804	Marketing Basics	
MBA 805	Management Basics	
ECON 811	Analysis of Macro-Economic Theory	
ECON 812	Analysis of Micro-Economic Theory	

<sup>1</sup> These courses are to be taken only if a specific deficiency exists.

<sup>2</sup> With approval of the program director, equivalent credit may be granted for courses of equal content taken in an undergraduate or graduate program. See Advanced Standing section above.

### MBA – Health Care Administration

The health care administration concentration offers the opportunity to study business administration at the graduate level with particular emphasis on health care management. Building on the MBA curriculum, this concentration provides understanding and knowledge of the issues facing organizations in the health services industry. The specialized knowledge will help students cope with managerial processes in the dynamic health care industry.

The following is a list of the required courses in common with the general MBA degree:

Course	Title	Hours
<b>Required Courses for All MBA Degrees</b>		
MKT 803	Marketing Analysis (taken within first two semesters of admission)	3
or MGMT 803	Business Decision Making and Analysis	
BLAW 810	Law and Ethics for Business	3
FIN 850	Managerial Finance	3
MGMT 862	Organizational Behavior	3
MGMT 885	Advanced Strategic Management (taken during last semester)	3
MBA 799	Professional Development/360 (taken in the first year of the program)	0
<b>Required for the Concentration</b>		
ACCT 801	Managerial Accounting	3
MKT 801	Marketing Management	3
DS 850	Operations Management	3
MIS 874	Management Information Systems	3
PHS 812	Health Care Policy and Administration	3
PHS 814	Social and Behavioral Aspects of Public Health	3
PHS 833	Health Economics	3
Total Credit Hours		36

### Applied Learning

Students in the MBA program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing two core graduate courses: MKT 803/MGMT 803 and MIS 874. These courses provide opportunities to gain applied learning experiences through projects.

## MBA - Human Resource Management Concentration

### Admission

Admission to the MBA program is granted to students who show high promise of success in postgraduate business study and who hold bachelor's degrees from regionally accredited institutions.

Previous academic training in business is not required for admission to the MBA program. Students may have backgrounds in such diverse fields as engineering, liberal arts, education and health related areas. The specific content of a student's previous education is less important than the evidence that the student has sound scholarship, strong

personal motivation, and the ability to develop the skills necessary to assume positions of leadership.

Admission decisions are based on the following:

1. Graduate Management Admission Test/Graduate Record Examination (GMAT/GRE) scores — overall score and component (i.e., verbal, quantitative and analytical writing) scores are evaluated. The GMAT/GRE must have been taken within the last six years;<sup>1</sup>
2. Personal Goals essay that clearly articulates the applicant's reasons for seeking admission (500 words maximum);
3. Two reference forms completed by faculty, employer or suitable referee;
4. Current resume (career-based work experience is desirable but not required); and
5. International students are required to have a minimum score of 570 (paper-based), or 88 (internet-based) on the Test of English as a Foreign Language, or an overall band score of 7.0 on the IELTS, or a score of 65 on the PTE-Academic.

Final admission of qualified applicants may be based on space available in the MBA program.

Applications for degree admission are reviewed twice a year, in the fall and spring. Deadlines for submitting applications to the Graduate School are July 1 for consideration for fall admission and December 1 for spring admission. International applicants living outside the United States must submit their applications by April 1 for fall admission consideration and August 1 for spring admission consideration. Applicants who apply after these deadlines are considered in the order in which their completed application materials are received.

#### <sup>1</sup> GMAT exceptions:

- Three years or more of managerial work experience, evaluated by the Office of Graduate Studies in Business; or
- WSU graduate with a GPA of 3.500 or higher in the last 60 credit hours; or
- Business degree from an AACSB accredited school and a GPA of 3.500 or higher in the last 60 credit hours; or
- A U.S. master's degree or equivalent.

### Advanced Standing

Students with strong backgrounds in business administration may be granted advanced standing in the MBA program through equivalent credit for background preparatory courses for which a minimum grade of *C* was received in an undergraduate or graduate program. Most students entitled to such credit hold bachelor's degrees in business administration from accredited institutions.

Students may be granted equivalent credit for any or all of the preparatory courses, depending on the depth of their undergraduate or previous graduate preparation. The MBA program may consist of as few as 36 credit hours for students who have no deficiencies in prerequisites and who receive equivalent credit for all of the background fundamentals.

### Students Not Receiving Advanced Standing

Students with bachelor's degrees in nonbusiness fields usually will not have backgrounds warranting the granting of advanced standing through equivalency credit. There are some exceptions. Some students, for example, may have had enough coursework in economics or statistics to be granted credit for these courses. Determination regarding equivalency credit will be made following admission to the program. A

minimum grade of *C* (2.000) or better is required for the prerequisites MATH 144 and ECON 231.

### MBA Course Prerequisites

Course	Title	Hours
<b>Prerequisites <sup>1</sup></b>		
MATH 144	Business Calculus	
ECON 231	Introductory Business Statistics	
<b>Preparatory Courses <sup>2</sup></b>		
MBA 802	Fundamentals of Accounting	
MBA 803	Fundamentals of Finance	
MBA 804	Marketing Basics	
MBA 805	Management Basics	
ECON 811	Analysis of Macro-Economic Theory	
ECON 812	Analysis of Micro-Economic Theory	

<sup>1</sup> These courses are to be taken only if a specific deficiency exists.

<sup>2</sup> With approval of the program director, equivalent credit may be granted for courses of equal content taken in an undergraduate or graduate program. See Advanced Standing section above.

### MBA – Human Resource Management

The following is a list of the required courses in common with the general MBA degree:

Course	Title	Hours
<b>Required Courses for All MBA Degrees</b>		
MGMT 803 or MKT 803	Business Decision Making and Analysis (taken within first two semesters of admission) Marketing Analysis	3
BLAW 810	Law and Ethics for Business	3
FIN 850	Managerial Finance	3
MGMT 862	Organizational Behavior	3
MGMT 885	Advanced Strategic Management (taken during last semester)	3
<b>Required for Concentration</b>		
ECON 804	Managerial Economics (taken within the first year)	3
DS 850	Operations Management	3
MIS 874	Management Information Systems	3
IB 836	International Business and Competitiveness	3
<i>Select three of the following</i>		9
HRM 866	Selection	
HRM 868	Rewards	
HRM 869	Talent Development	
HRM 803	Human Resource Analytics	
HRM 885	Strategic Human Resource Management	

Total Credit Hours

36

### Applied Learning

Students in the MBA program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing two core graduate courses: MKT 803/MGMT 803 and MIS 874. These courses provide opportunities to gain applied learning experiences through projects.

## MBA - Marketing Concentration

### Admission

Admission to the MBA program is granted to students who show high promise of success in postgraduate business study and who hold bachelor's degrees from regionally accredited institutions.

Previous academic training in business is not required for admission to the MBA program. Students may have backgrounds in such diverse fields as engineering, liberal arts, education and health related areas. The specific content of a student's previous education is less important than the evidence that the student has sound scholarship, strong personal motivation, and the ability to develop the skills necessary to assume positions of leadership.

Admission decisions are based on the following:

1. Graduate Management Admission Test/Graduate Record Examination (GMAT/GRE) scores — overall score and component (i.e., verbal, quantitative and analytical writing) scores are evaluated. The GMAT/GRE must have been taken within the last six years;<sup>1</sup>
2. Personal Goals essay that clearly articulates the applicant's reasons for seeking admission (500 words maximum);
3. Two reference forms completed by faculty, employer or suitable referee;
4. Current resume (career-based work experience is desirable but not required); and
5. International students are required to have a minimum score of 570 (paper-based), or 88 (internet-based) on the Test of English as a Foreign Language, or an overall band score of 7.0 on the IELTS, or a score of 65 on the PTE-Academic.

Final admission of qualified applicants may be based on space available in the MBA program.

Applications for degree admission are reviewed twice a year, in the fall and spring. Deadlines for submitting applications to the Graduate School are July 1 for consideration for fall admission and December 1 for spring admission. International applicants living outside the United States must submit their applications by April 1 for fall admission consideration and August 1 for spring admission consideration. Applicants who apply after these deadlines are considered in the order in which their completed application materials are received.

<sup>1</sup> GMAT exceptions:

- Three years or more of managerial work experience, evaluated by the Office of Graduate Studies in Business; or
- WSU graduate with a GPA of 3.500 or higher in the last 60 credit hours; or
- Business degree from an AACSB accredited school and a GPA of 3.500 or higher in the last 60 credit hours; or
- A U.S. master's degree or equivalent.

### Advanced Standing

Students with strong backgrounds in business administration may be granted advanced standing in the MBA program through equivalent credit for background preparatory courses for which a minimum grade of C was received in an undergraduate or graduate program. Most students entitled to such credit hold bachelor's degrees in business administration from accredited institutions.

Students may be granted equivalent credit for any or all of the preparatory courses, depending on the depth of their undergraduate or previous graduate preparation. The MBA program may consist

of as few as 36 credit hours for students who have no deficiencies in prerequisites and who receive equivalent credit for all of the background fundamentals.

### Students Not Receiving Advanced Standing

Students with bachelor's degrees in nonbusiness fields usually will not have backgrounds warranting the granting of advanced standing through equivalency credit. There are some exceptions. Some students, for example, may have had enough coursework in economics or statistics to be granted credit for these courses. Determination regarding equivalency credit will be made following admission to the program. A minimum grade of C (2.000) or better is required for the prerequisites MATH 144 and ECON 231.

### MBA Course Prerequisites

Course	Title	Hours
<b>Prerequisites<sup>1</sup></b>		
MATH 144	Business Calculus	
ECON 231	Introductory Business Statistics	
<b>Preparatory Courses<sup>2</sup></b>		
MBA 802	Fundamentals of Accounting	
MBA 803	Fundamentals of Finance	
MBA 804	Marketing Basics	
MBA 805	Management Basics	
ECON 811	Analysis of Macro-Economic Theory	
ECON 812	Analysis of Micro-Economic Theory	

<sup>1</sup> These courses are to be taken only if a specific deficiency exists.

<sup>2</sup> With approval of the program director, equivalent credit may be granted for courses of equal content taken in an undergraduate or graduate program. See Advanced Standing section above.

### MBA – Marketing

The MBA marketing concentration provides students with specialized knowledge necessary to understand organizational marketing issues. The curriculum blends theory with applied business practices to enlighten students to the issues and challenges faced in creating and managing a customer oriented marketing function. Specific emphasis is placed on the importance of gathering and analyzing marketing intelligence and creating an understanding of the organization's customers and competitive environment, and developing appropriate marketing initiatives. Advanced courses typically involve cases and/or applied learning projects.

The following is a list of the required courses in common with the general MBA degree:

Course	Title	Hours
<b>Required Courses for All MBA Degrees</b>		
MGMT 803	Business Decision Making and Analysis (taken within first two semesters of admission)	3
or MKT 803	Marketing Analysis	
BLAW 810	Law and Ethics for Business	3
FIN 850	Managerial Finance	3
MGMT 862	Organizational Behavior	3
MGMT 885	Advanced Strategic Management	3
MBA 799	Professional Development/360 (taken in the first year of the program)	0

Required for Concentration		
ECON 804	Managerial Economics (taken within the first year)	3
ACCT 801	Managerial Accounting	3
MKT 801	Marketing Management	3
DS 850	Operations Management	3
MIS 874	Management Information Systems	3
MKT 805	Consumer Decision-making Process	3
MKT 890	Seminar in Special Topics	3
Total Credit Hours		36

### Applied Learning

Students in the MBA program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing two core graduate courses: MKT 803/MGMT 803 and MIS 874. These courses provide opportunities to gain applied learning experiences through projects.

## MBA - Supply Chain Management Concentration

### Admission

Admission to the MBA program is granted to students who show high promise of success in postgraduate business study and who hold bachelor's degrees from regionally accredited institutions.

Previous academic training in business is not required for admission to the MBA program. Students may have backgrounds in such diverse fields as engineering, liberal arts, education and health related areas. The specific content of a student's previous education is less important than the evidence that the student has sound scholarship, strong personal motivation and the ability to develop the skills necessary to assume positions of leadership.

Admission decisions are based on the following:

1. Graduate Management Admission Test/Graduate Record Examination (GMAT/GRE) scores — overall score and component (i.e., verbal, quantitative and analytical writing) scores are evaluated. The GMAT/GRE must have been taken within the last six years;<sup>1</sup>
2. Personal goals essay that clearly articulates the applicant's reasons for seeking admission (500 words maximum);
3. Two reference forms completed by faculty, employer or suitable referee;
4. Current resume (career-based work experience is desirable but not required); and
5. International students are required to have a minimum score of 570 (paper-based), or 88 (internet-based) on the Test of English as a Foreign Language, or an overall band score of 7.0 on the IELTS, or a score of 65 on the PTE-Academic.

Final admission of qualified applicants may be based on space available in the MBA program.

Applications for degree admission are reviewed twice a year, in the fall and spring. Deadlines for submitting applications to the Graduate School are July 1 for consideration for fall admission and December 1 for spring admission. International applicants living outside the United States must submit their applications by April 1 for fall admission consideration and August 1 for spring admission consideration.

Applicants who apply after these deadlines are considered in the order in which their completed application materials are received.

### <sup>1</sup> GMAT exceptions:

- Three years or more of managerial work experience, evaluated by the Office of Graduate Studies in Business; or
- WSU graduate with a GPA of 3.500 or higher in the last 60 credit hours; or
- Business degree from an AACSB accredited school and a GPA of 3.500 or higher in the last 60 credit hours; or
- A U.S. master's degree or equivalent.

### Advanced Standing

Students with strong backgrounds in business administration may be granted advanced standing in the MBA program through equivalent credit for background preparatory courses for which a minimum grade of C was received in an undergraduate or graduate program. Most students entitled to such credit hold bachelor's degrees in business administration from accredited institutions.

Students may be granted equivalent credit for any or all of the preparatory courses, depending on the depth of their undergraduate or previous graduate preparation. The MBA program may consist of as few as 36 credit hours for students who have no deficiencies in prerequisites and who receive equivalent credit for all of the background fundamentals.

### Students Not Receiving Advanced Standing

Students with bachelor's degrees in nonbusiness fields usually will not have backgrounds warranting the granting of advanced standing through equivalency credit. There are some exceptions. Some students, for example, may have had enough coursework in economics or statistics to be granted credit for these courses. Determination regarding equivalency credit will be made following admission to the program. A minimum grade of C (2.000) or better is required for the prerequisites MATH 144 and ECON 231.

### MBA Course Prerequisites

Course	Title	Hours
<b>Prerequisites <sup>1</sup></b>		
MATH 144	Business Calculus	
ECON 231	Introductory Business Statistics	
<b>Preparatory Courses <sup>2</sup></b>		
MBA 802	Fundamentals of Accounting	
MBA 803	Fundamentals of Finance	
MBA 804	Marketing Basics	
MBA 805	Management Basics	
ECON 811	Analysis of Macro-Economic Theory	
ECON 812	Analysis of Micro-Economic Theory	

<sup>1</sup> These courses are to be taken only if a specific deficiency exists.

<sup>2</sup> With approval of the program director, equivalent credit may be granted for courses of equal content taken in an undergraduate or graduate program. See Advanced Standing section above.

### MBA – Supply Chain Management

The MBA with supply chain management concentration is designed to provide graduate students with knowledge and skills to effectively manage supply chains. This concentration aims to supplement the MBA core courses that discuss how managers and executives make their decisions in different business functions. Students are exposed to topics in operations, logistics, distribution, transportation and procurement.

The concentration trains managers to lead value creation in the global management of supply chains.

The following is a list of the required courses in common with the general MBA degree:

Course	Title	Hours
<b>Required Courses for All MBA Degrees</b>		
MKT 803	Marketing Analysis (taken within first two semesters of admission)	3
or MGMT 803	Business Decision Making and Analysis	
BLAW 810	Law and Ethics for Business	3
FIN 850	Managerial Finance	3
MGMT 862	Organizational Behavior	3
MGMT 885	Advanced Strategic Management (taken during last semester)	3
MBA 799	Professional Development/360 (taken in the first year of the program)	0
<b>Required for Concentration</b>		
ACCT 801	Managerial Accounting	3
DS 850	Operations Management	3
MIS 874	Management Information Systems	3
IB 836	International Business and Competitiveness	3
DS 865	Supply Chain Management	3
or IME 783	Supply Chain Management	
<i>Select two courses from the following list</i>		6
DS 725	Global Procurement and Outsourcing	
DS 790	Global Logistics and Transportation Management	
DS 870	Risk Management in Global Supply Chains	
Total Credit Hours		36

### Applied Learning

All students in the MBA program in the Barton School of Business are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing two core graduate courses: MKT 803/MGMT 803 and MIS 874. These courses provide opportunities for the students to gain applied learning experiences through projects.

## MEM to MBA Program

### Program Requirements

Students completing the Master of Engineering Management (MEM) program at WSU may be allowed to use up to 12 credit hours (four courses) in the Master of Business Administration (MBA) program at WSU if they pursue it (i.e., double-counting 12 credit hours between two programs). The 12 credit hours will be completed by the student as a requirement for the MEM program and should be taken from the required courses in the MBA curriculum. The main objective of making this change is to provide the opportunity to students to pursue dual degrees (MEM and MBA) and structure the curriculum so that both programs can be completed within a reasonable time frame. The double counting rule will allow students to complete both programs by taking 60 credit hours of coursework. The MEM program must be completed before any courses can be applied to the MBA program.

## MS in Management Science and Supply Chain Management to MBA

### Program Requirements

Students completing the Master of Science in management science and supply chain management (MS-MSSCM) program or Master of Business Administration (MBA) program at WSU may be allowed to use up to 12 credit hours (four courses) to complete the other program if they pursue it (i.e., double-counting 12 credit hours between two programs). The 12 credit hours will be completed by the student as a requirement for the MS-MSSCM or MBA program. The main objective of making this change is to provide the opportunity to students to pursue dual degrees (MS-MSSCM and MBA) and structure the curriculum so that both programs can be completed within a reasonable time frame. One program must be completed before any courses can be applied to the other program.

### Applied Learning

Students in the MBA program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing two core graduate courses: MKT 803/MGMT 803 and MIS 874. These courses provide opportunities to gain applied learning experiences through projects.

## Executive Master of Business Administration

The Executive MBA program is the premier option for professionals to obtain the MBA credential while continuing to work. Designed to develop mid-career managers, executives and business owners, the EMBA program focuses on the needs of professionals. Completed in 20 months, meeting on select Saturdays, the program offers a distinctive approach and value for the working professional. The interactive, collaborative environment in which the curriculum is delivered and the personalized support provided are available only through the EMBA program.

The Executive MBA program curriculum includes insights into human behavior, proven analytical tools, strategic operational and financial management, innovative marketing concepts, and the latest in competitive technology. The program is administered through Barton School of Business faculty in the accounting; economics; finance, real estate and decision sciences; management and marketing departments.

### Programs in Executive Master of Business Administration

- Executive MBA (p. 117)

### Courses in Executive Master of Business Administration

- Executive Master of Business Administration (EMBA) (p. 331)

## Executive MBA

Admission to the EMBA is offered every two years. The next class will begin in fall of 2021. Good candidates for the Executive MBA program are individuals who are self-motivated and have the temperament to handle the demands of work, school and home and the willingness to make a 20-month commitment.

### Requirements

1. Academic four-year undergraduate degree from a regionally accredited institution, not necessarily in business;
2. Minimum of five years relevant work experience, management experience is preferred;
3. Ability to participate in and contribute to an intensive learning environment;

4. Time and willingness to make a 20-month commitment to attend classes, study-group meetings and other required activities (including an international trip);
5. International students are required to have a minimum score of: 570 (paper-based), or 88 (internet-based) on the Test of English as a Foreign Language (TOEFL), an overall band score of 7.0 on the IELTS examination, or a score of 65 on the PTE-Academic.

### Application Process

Applications are accepted throughout the year on a first-come, first-served basis. Because only 24 students are admitted for each cohort, early application is encouraged. The deadline for application is June 1. For international applicants, the deadline is May 1 (Graduate School application materials are due by April 1).

Once all application materials are received, the required personal interview will be scheduled.

Executive MBA applicants must submit the following:

- Graduate School application;
- Two confidential recommendations;
- Acknowledgement of Responsibility (.pdf downloaded from EMBA website) and signed by employer/employee;
- Essay (500 words minimum) that clearly articulates:
  - Responsibilities of applicant's current position (business function, number of employees supervised, budget managed/sales figures, etc.);
  - Career objectives;
  - What applicant expects to accomplish through the Executive MBA program, including expected learning experiences and plans to apply them;
- Current resume;
- Two official transcript copies mailed from each college attended; and
- A \$75 application fee (nonrefundable) payable to WSU — EMBA.

### Executive MBA Course Requirements

All students must complete 30 credit hours of coursework. Students progress through the program as a group.

Course	Title	Hours
<b>Required Courses</b>		
EMBA 801	Organizational Behavior	2
EMBA 806	Financial Reporting and Analysis	2
EMBA 807	Corporate Finance	2
EMBA 803	Business Economics	2
EMBA 800	Business Analytics	2
EMBA 802	Strategic Marketing	2
EMBA 805	Global Business and Competitiveness	3
EMBA 809	Digital Transformation	1.5
EMBA 804	Operations and Supply Chain Management	2
EMBA 812	Business Law and Ethics	1.5
EMBA 808	Accounting for Planning and Control	2
EMBA 811	Competitive Strategy	2
Select either the Innovation Leadership Immersion or the Program Management Immersion option		
Innovation Leadership		
EMBA 890E	Executive Leadership	

EMBA 890C	Negotiations
EMBA 890G	Corporate Entrepreneurship
EMBA 890K	Innovation Management
EMBA 890M	New Product Development
EMBA 890N	Human Resource Management
<b>Program Management</b>	
EMBA 890E	Executive Leadership
EMBA 890C	Negotiations
EMBA 890	Executive Seminar in Special Topics (chosen in consultation with advisor)
Total Credit Hours	
	30

Note: New courses are being developed. Please check with an advisor for the most recent updates.

### Applied Learning

Students in the EMBA program are required to complete an applied learning or research experience to graduate from this program. The requirement can be met by completing an integrated capstone project. The project is an integral part of the program and concludes with presentations in the final class of the program, EMBA 811 Competitive Strategy .

## MA in Applied Economics

The department of economics presents a curriculum leading to the Master of Arts (MA) degree. Courses of study provide students with analytical skills useful in decision making and a broader understanding of the overall economic environment. Students can opt for a concentration in one of three areas:

- Data analytics,
- Financial economics, or
- International economics.

Options provide as much flexibility as is compatible with the student's background and career interests.

### Programs in Economics

- MA in Applied Economics (p. 118)
- MA in Applied Economics - Data Analytics Concentration (p. 119)
- MA in Applied Economics - Financial Economics Concentration (p. 120)
- MA in Applied Economics - International Economics Concentration (p. 120)

### Courses in Economics

- Economics (ECON) (p. 322)

## MA in Applied Economics

### Admission

1. Applicants must have earned a four-year undergraduate degree from a regionally accredited institution or a recognized institution in another country whose requirements for the bachelor's degree are substantially equivalent to an American four-year bachelor's degree.
2. Admission to the program is based primarily on the applicant's grade point average (GPA) and background in economics.
3. For admission to full standing, applicants must have a GPA of at least 2.750 on a 4.000 scale overall and for all courses in economics and required mathematics.

- Applicants must have completed principles of macro- and microeconomics, plus one course in statistics and one in calculus. Additionally, students must have completed (or complete within one year of admission) intermediate level macro- and microeconomics. (An approved course in money and banking may be substituted for intermediate macroeconomics.) A minimum grade of C+ (2.300 grade points) is required for the two intermediate level classes as well as statistics and calculus.
- The Graduate Record Examination (GRE) is *not* required.
- Non-native speakers of English must have received a minimum score of 550 on the paper-based, or 79 on the internet-based Test of English as a Foreign Language (TOEFL), or a minimum overall band score of 6.5 on the IELTS, or have a score of 58 on the PTE-Academic, or have attended another U.S. university as a full-time student enrolled in academic courses for a minimum of one year, or have earned a bachelor's degree (or higher) from a U.S. university within two years of their proposed semester of admission.

### Program Requirements

The program consists of 30 credit hours. This includes a 3-credit-hour independent research project. The graduate coordinator or the department chairperson must approve the candidate's plan of study. Courses identified as background fundamentals of the MBA program and other courses designated by the economics department may not be included in the hours required for the degree.

Course	Title	Hours
<b>Core Courses</b>		
ECON 722	Topics in Microeconomics	3
ECON 731	Applied Econometrics	3
ECON 801	Macroeconomic Analysis	3
ECON 803	Analysis of Business Conditions and Forecasting	3
ECON 804	Managerial Economics	3
ECON 893	Research Project	3
Total Credit Hours		18

At least 70 percent of total program credit hours must be at the 700–800 level. (The remaining hours may be at the 500–600 level.)

Course	Title	Hours
<b>Additional Requirements for Students not Pursuing a Concentration</b>		
In addition to the core, select four courses in economics or courses approved by the graduate coordinator.		12
Total Credit Hours		12

### Applied Learning

Students in the MA in applied economics program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by successful completion of ECON 893 Research Project.

The project require students to demonstrate their ability to successfully apply the tools of economics to a research problem of their choosing and submit a paper to their project advisor.

## MA in Applied Economics - Data Analytics Concentration

### Admission

- Applicants must have earned a four-year undergraduate degree from a regionally accredited institution or a recognized institution in another country whose requirements for the bachelor's degree are substantially equivalent to an American four-year bachelor's degree.

- Admission to the program is based primarily on the applicant's grade point average (GPA) and background in economics.
- For admission to full standing, applicants must have a GPA of at least 2.750 on a 4.000 scale overall and for all courses in economics and required mathematics.
- Applicants must have completed principles of macro- and microeconomics, plus one course in statistics and one in calculus. Additionally, students must have completed (or complete within one year of admission) intermediate level macro- and microeconomics. (An approved course in money and banking may be substituted for intermediate macroeconomics.) A minimum grade of C+ (2.300 grade points) is required for the two intermediate level classes as well as statistics and calculus.
- The Graduate Record Examination (GRE) is *not* required.
- Non-native speakers of English must have received a minimum score of 550 on the paper-based, or 79 on the internet-based Test of English as a Foreign Language (TOEFL), or a minimum overall band score of 6.5 on the IELTS, or have a score of 58 on the PTE-Academic, or have attended another U.S. university as a full-time student enrolled in academic courses for a minimum of one year, or have earned a bachelor's degree (or higher) from a U.S. university within two years of their proposed semester of admission.

### Program Requirements

The program consists of 30 credit hours. This includes a 3-credit-hour independent research project. The graduate coordinator or the department chairperson must approve the candidate's plan of study. Courses identified as background fundamentals of the MBA program and other courses designated by the economics department may not be included in the credit hours required for the degree.

Course	Title	Hours
<b>Core Courses</b>		
ECON 722	Topics in Microeconomics	3
ECON 731	Applied Econometrics	3
ECON 801	Macroeconomic Analysis	3
ECON 803	Analysis of Business Conditions and Forecasting	3
ECON 804	Managerial Economics	3
ECON 893	Research Project	3
Total Credit Hours		18

At least 70 percent of total program credit hours must be at the 700–800 level. (The remaining credit hours may be at the 500–600 level.)

### Data Analytics Concentration

Course	Title	Hours
In addition to the core, select three of the following		
MIS 600	Database Management Systems	9
or MIS 884	Database Planning & Management	
BSAN 775	Perspectives on Business Analytics	9
BSAN 875	Advanced Business Analytics	
MIS 750	Business Intelligence and Analytics	9
MGMT 803	Business Decision Making and Analysis	
or MKT 803	Marketing Analysis	3
Plus one additional course, approved by the graduate coordinator, from economics, statistics, business or engineering		
Total Credit Hours		12

**Applied Learning**

Students in the MA in applied economics - data analytics concentration program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by successful completion of ECON 893 Research Project.

The project requires students to demonstrate their ability to successfully apply the tools of economics to a research problem of their choosing and submit a paper to their project advisor.

## MA in Applied Economics - Financial Economics Concentration

**Admission**

1. Applicants must have earned a four-year undergraduate degree from a regionally accredited institution or a recognized institution in another country whose requirements for the bachelor's degree are substantially equivalent to an American four-year bachelor's degree.
2. Admission to the program is based primarily on the applicant's grade point average (GPA) and background in economics.
3. For admission to full standing, applicants must have a GPA of at least 2.750 on a 4.000 scale overall and for all courses in economics and required mathematics.
4. Applicants must have completed principles of macro- and microeconomics, plus one course in statistics and one in calculus. Additionally, students must have completed (or complete within one year of admission) intermediate level macro- and microeconomics. (An approved course in money and banking may be substituted for intermediate macroeconomics.) A minimum grade of C+ (2.300 grade points) is required for the two intermediate level classes as well as statistics and calculus.
5. The Graduate Record Examination (GRE) is *not* required.
6. Non-native speakers of English must have received a minimum score of 550 on the paper-based, or 79 on the internet-based Test of English as a Foreign Language (TOEFL), or a minimum overall band score of 6.5 on the IELTS, or have a score of 58 on the PTE-Academic, or have attended another U.S. university as a full-time student enrolled in academic courses for a minimum of one year, or have earned a bachelor's degree (or higher) from a U.S. university within two years of their proposed semester of admission.

**Program Requirements**

The program consists of 30 credit hours. This includes a 3-credit-hour independent research project. The graduate coordinator or the department chairperson must approve the candidate's plan of study. Courses identified as background fundamentals of the MBA program and other courses designated by the economics department may not be included in the hours required for the degree.

Course	Title	Hours
<b>Core Courses</b>		
ECON 722	Topics in Microeconomics	3
ECON 731	Applied Econometrics	3
ECON 801	Macroeconomic Analysis	3
ECON 803	Analysis of Business Conditions and Forecasting	3
ECON 804	Managerial Economics	3
ECON 893	Research Project	3
Total Credit Hours		18

At least 70 percent of total program credit hours must be at the 700–800 level. (The remaining hours may be at the 500–600 level.)

**Financial Economics Concentration**

Course	Title	Hours
FIN 850	Managerial Finance	3
Three additional courses in economics or finance that are concentration related and approved by the graduate coordinator		9
Total Credit Hours		12

**Applied Learning**

Students in the MA in applied economics - financial economics concentration program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by successful completion of ECON 893 Research Project.

The project require students to demonstrate their ability to successfully apply the tools of economics to a research problem of their choosing and submit a paper to their project advisor.

## MA in Applied Economics - International Economics Concentration

**Admission**

1. Applicants must have earned a four-year undergraduate degree from a regionally accredited institution or a recognized institution in another country whose requirements for the bachelor's degree are substantially equivalent to an American four-year bachelor's degree.
2. Admission to the program is based primarily on the applicant's grade point average (GPA) and background in economics.
3. For admission to full standing, applicants must have a GPA of at least 2.750 on a 4.000 scale overall and for all courses in economics and required mathematics.
4. Applicants must have completed principles of macro- and microeconomics, plus one course in statistics and one in calculus. Additionally, students must have completed (or complete within one year of admission) intermediate level macro- and microeconomics. (An approved course in money and banking may be substituted for intermediate macroeconomics.) A minimum grade of C+ (2.300 grade points) is required for the two intermediate level classes as well as statistics and calculus.
5. The Graduate Record Examination (GRE) is *not* required.
6. Non-native speakers of English must have received a minimum score of 550 on the paper-based, or 79 on the internet-based Test of English as a Foreign Language (TOEFL), or a minimum overall band score of 6.5 on the IELTS, or have a score of 58 on the PTE-Academic, or have attended another U.S. university as a full-time student enrolled in academic courses for a minimum of one year, or have earned a bachelor's degree (or higher) from a U.S. university within two years of their proposed semester of admission.

**Program Requirements**

The program consists of 30 credit hours. This includes a 3-credit-hour independent research project. The graduate coordinator or the department chairperson must approve the candidate's plan of study. Courses identified as background fundamentals of the MBA program and other courses designated by the economics department may not be included in the hours required for the degree.

Course	Title	Hours
<b>Core Courses</b>		
ECON 722	Topics in Microeconomics	3
ECON 731	Applied Econometrics	3
ECON 801	Macroeconomic Analysis	3
ECON 803	Analysis of Business Conditions and Forecasting	3
ECON 804	Managerial Economics	3

ECON 893	Research Project	3
Total Credit Hours		18

At least 70 percent of total program credit hours must be at the 700–800 level. (The remaining hours may be at the 500–600 level.)

### **International Economics Concentration**

Course	Title	Hours
ECON 672/IB 561	International Economics and Business	3
ECON 674/FIN 625/IB 625	International Financial Management	3
ECON 870	International Capital Markets	3
One additional economics/international related course approved by the graduate coordinator		3
Total Credit Hours		12

### **Applied Learning**

Students in the MA in applied economics - international economics program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by successful completion of ECON 893 Research Project.

The project require students to demonstrate their ability to successfully apply the tools of economics to a research problem of their choosing and submit a paper to their project advisor.

## **Master of Human Resource Management**

The Master of Human Resource Management (MHRM) program addresses the need for skilled professionals who are well versed in the current theories and best practices of the field. In the program, students take a series of classes covering key human resource management (HRM) areas such as employee relations, staffing, training, legal environment and rewards. The program is targeted at practicing HR professionals who wish to advance in the profession as well as managers with HR responsibilities.

### **Admission**

Admission to the MHRM program is granted to applicants who show high promise of success in postgraduate business study. Previous academic training in business is not required for admission to the MHRM program. Applicants may have backgrounds in such diverse fields as engineering, liberal arts, education and health related areas. The specific content of a student's previous education is less important than evidence that the student has sound scholarship, strong personal motivation, and the the ability to develop HRM leadership skills.

To be admitted to the MHRM program, an applicant must:

1. Possess an undergraduate degree;
2. Have a minimum GPA of 2.750 (out of 4.000) in the last 60 credit hours of coursework, including any graduate courses. Students with a lower GPA may apply with the GRE or GMAT score for consideration of probationary admission;
3. Submit a statement that articulates the applicant's reason for seeking admission to the program (500 words maximum); and
4. Submit a current resume.

### **Program Requirements**

The program consists of 30 credit hours. Twenty-four (24) of the credit hours are composed of eight required courses. The remaining 6 credit hours are composed of elective courses.

Course	Title	Hours
<b>Required Courses</b>		
MGMT 885	Advanced Strategic Management	3
HRM 665	Employment Law	3
HRM 803	Human Resource Analytics	3
MGMT 862	Organizational Behavior	3
HRM 868	Rewards	3
HRM 866	Selection	3
HRM 885	Strategic Human Resource Management	3
HRM 869	Talent Development	3
<b>Electives</b>		
Select 6 credit hours from the following		6
IB 836	International Business and Competitiveness	
BLAW 810	Law and Ethics for Business	
ECON 804	Managerial Economics	
MGMT 662	Managing in Diverse Organizations	
MKT 803	Marketing Analysis	
DS 850	Operations Management	
MIS 874	Management Information Systems	
HRM 891	Directed Studies (repeatable for credit up to 6 credit hours)	
Total Credit Hours		30

### **Applied Learning**

Students in the MHRM program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by creating a talent development project with a real organization in one of the required courses (HRM 869 Talent Development).

## **MS in Business Analytics**

### **Admission**

Admission to the MS in business analytics (MSBA) program will be granted to applicants who show a high likelihood of success in postgraduate business education. Previous academic training in business is not required for admission to the MSBA program. Applicants may have backgrounds in diverse fields such as engineering, liberal arts, education and health related areas. The specific content of a student's previous education is less important than the evidence that the student has sound scholarship, strong personal motivation and the ability to develop business analytic skills.

To be admitted to the MSBA program, an applicant must:

1. Possess an undergraduate degree.
2. Have a minimum GPA 3.000 (out of 4.000) in the last 60 credit hours of coursework (graduate and/or undergraduate). Students with a GPA lower than 3.000 may apply with GRE or GMAT scores for consideration.
3. Submit a personal statement that clearly states the applicant's reason for seeking admission to the program (500 words maximum).
4. Submit a professional resume.
5. Meet the minimum TOEFL and IELTS requirements set by the WSU Graduate School (only for students with English as a second language).

Applicants needing an F1 visa must also provide documentation for financial support.

### Program Requirements

The program is designed to attract a wide range of domestic and international professionals. The curriculum focuses on developing contemporary competencies via innovative hands-on activities and industry practices. To serve the needs of professionals in the field, the MS in business analytics program offers two tracks — management and data science:

- **Management Track** focuses on developing capabilities and mastery in leading analytics initiatives.
- **Data Science Track** aims to impart mastery in use of innovative tools and techniques in data analytics.

Both tracks require prerequisites that can be waived based on the undergraduate degree and professional background of the applicant. Students are required to complete 24 credit hours of core courses and select 6 credit hours of elective courses.

#### Prerequisites - All Tracks

Course	Title	Hours
<b>Quantitative Requirements (6 credit hours)</b>		
Calculus		3
Statistics		3
<b>MBA Prep Courses (9 credit hours)</b>		
May be waived with equivalent courses at the undergraduate or graduate levels, or with appropriate professional experience.		
MBA 802	Fundamentals of Accounting	1.5
MBA 803	Fundamentals of Finance	1.5
MBA 804	Marketing Basics	1.5
MBA 805	Management Basics	1.5
DS 850	Operations Management	3
Total Credit Hours		15

#### MS in Business Analytics (MSBA) – Management Track

Course	Title	Hours
<b>Required Courses (24 credit hours)</b>		
BSAN 775	Perspectives on Business Analytics	3
BSAN 875	Advanced Business Analytics	3
MIS 750	Business Intelligence and Analytics	3
BSAN 734	Introduction to Data Mining and Analytics	3
or IME 734	Introduction to Data Mining and Analytics	
MIS 884	Database Planning & Management	3
MKT 803	Marketing Analysis	3
or MGMT 803	Business Decision Making and Analysis	
ECON 803	Analysis of Business Conditions and Forecasting	3
or IME 880Y	Forecasting and Analytics	
BSAN 885	Business Analytics Capstone	3
<b>Electives (6 credit hours)</b>		
Select 6 credit hours from the following		
ACCT 860	Advanced Accounting Information Systems	
DS 755	Project Management	
DS 860	ERP: Enterprise Resource Planning	
HRM 803	Human Resource Analytics	

FIN 790A	Finance Analytics: Contemporary and Traditional Topics
FIN 865	Advanced Investment Analysis and Portfolio Management
MIS 612	Fundamentals of Cloud Computing
CS 746	Perspectives on Data Science
IME 883	Supply Chain Analytics
MATH 746	Introduction to Data Analytics
SMGT 800	Analytics and Decision Making In Sport

Any course with program director consent

Total Credit Hours 30

#### MS in Business Analytics (MSBA) – Data Science Track

Course	Title	Hours
<b>Required Core Courses (9 credit hours)</b>		
BSAN 775	Perspectives on Business Analytics	3
CS 746	Perspectives on Data Science	3
MATH 746	Introduction to Data Analytics	3
<b>Additional Required Courses (15 credit hours)</b>		
BSAN 875	Advanced Business Analytics	3
MIS 884	Database Planning & Management	3
BSAN 734	Introduction to Data Mining and Analytics	3
or IME 734	Introduction to Data Mining and Analytics	
CS 697AB	Machine Learning	3
BSAN 885	Business Analytics Capstone	3
<b>Electives (6 credit hours)</b>		
Select 6 credit hours from the following		
DS 860	ERP: Enterprise Resource Planning	
MIS 612	Fundamentals of Cloud Computing	
MIS 750	Business Intelligence and Analytics	
FIN 790A	Finance Analytics: Contemporary and Traditional Topics	
FIN 865	Advanced Investment Analysis and Portfolio Management	
ECON 803	Analysis of Business Conditions and Forecasting	
IME 780AN	Big Data Analytics in Engineering	
IME 780AP	Neural Networks and Machine Learning	
PSY 902 & PSY 903	Advanced Research Methods I and Advanced Research Methods II	
Any course with program director consent		
Total Credit Hours		30

#### Applied Learning

Students in the Master of Science in business analytics program are required to complete an applied learning or research experience to

graduate from the program. This requirement can be met by completion of BSAN 885 Business Analytics Capstone.

## MS in Management Science and Supply Chain Management

The Master of Science in management science and supply chain management (MSSCM) is an interdisciplinary program collaboratively offered by the Barton School of Business and the College of Engineering. The program targets a wide range of diverse domestic and international applicants. The supply chain curriculum is designed in a manner that students will acquire mastery in the managerial and analytics aspects of supply chain operations and develop contemporary competencies via innovative hands-on activities and industry practices.

The Master of Science in management science and supply chain management offers two tracks:

1. Management track focuses on developing capabilities and mastery leading to value creation in global management of procurement, logistics and operations.
2. Analytics track aims to build capabilities in the use of innovative tools and techniques in decision-making processes from design to planning phases.

### Admission

In order to be admitted into the supply chain management master's degree program, the applicant must:

1. Possess an undergraduate degree in business, engineering, science or related field.
2. Have a minimum GPA of 3.000/4.000 cumulative or in the last 60 credit hours (whichever is better) of undergraduate coursework and in all graduate courses. Students with lower GPAs may apply with GRE or GMAT scores for consideration of probationary admission.
3. Submit personal goal statement, which clearly articulates the applicant's reason for seeking admission to the program (500 words maximum).
4. Meet the minimum TOEFL and IELTS requirements set by the Graduate School, for students with English as a second language. Applicants needing an F1 visa must also provide documentation for financial support.

The application deadline is May 1st for the fall semester and October 1st for the spring semester.

### Program Requirements

Students are able to earn a Master of Science in management science and supply chain management by choosing one of the following four options:

Item	Cost
Coursework Option	33 credit hours of coursework
Certification Option	30 credit hours of coursework and receiving an external certification related to operations and supply chain management from ISM, ASQ, APICS or SME
Project Option	30 credit hours of coursework and at least 3 credit hours of degree project

Thesis Option	24 credit hours of coursework and at least 6 credit hours of master's thesis
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Students must submit a plan of study by the end of the first semester of enrollment.

The degree requires 15 credit hours of core courses, 9 credit hours of courses from a track, and electives to satisfy the degree requirements. A maximum of 9 credit hours of 500–600 level courses can be taken in this program. The core courses and courses in each track are listed below.

### Core Courses Required for All Tracks

Course	Title	Hours
DS 850 or IME 553	Operations Management Production Systems	3
DS 865 or IME 783	Supply Chain Management Supply Chain Management	3
DS 725	Global Procurement and Outsourcing	3
MIS 750	Business Intelligence and Analytics	3
DS 790	Global Logistics and Transportation Management	3
Total Credit Hours		15

Students must specialize in either the management or analytics track.

### Management Track

A student specializing in the management track is required to take DS 870 Risk Management in Global Supply Chains and a minimum of 6 credit hours from the management track.

Course	Title	Hours
<b>Required</b>		
DS 870	Risk Management in Global Supply Chains	3
<b>Electives</b>		
Students may select any other course not listed here with program coordinator consent		6
DS 860	ERP: Enterprise Resource Planning	
DS 890	Seminar in Special Topics	
BLAW 810	Law and Ethics for Business	
FIN 625	International Financial Management	
IB 836	International Business and Competitiveness	
IB 601	International Marketing	
MGMT 885	Advanced Strategic Management	
MKT 803	Marketing Analysis	
Total Credit Hours		9

### Analytics Track

A student specializing in the analytics track is required to take IME 883 Supply Chain Analytics and a minimum of 6 credit hours from the analytics track.

Course	Title	Hours
<b>Required</b>		
IME 883	Supply Chain Analytics	3
<b>Electives</b>		

Students may select any other course not listed here with program coordinator consent	6
DS 755	Project Management
BSAN 875	Advanced Business Analytics
or IME 550	Operations Research I
ECON 731	Applied Econometrics
MIS 874	Management Information Systems
MIS 884	Database Planning & Management
or MIS 600	Database Management Systems
IME 724	Statistical Methods for Engineers
IME 880Y	Forecasting and Analytics
Total Credit Hours	9

### Applied Learning

Students in the Master of Science in management science and supply chain management program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing a project, a thesis or the following required classes:

1. DS 850 Operations Management
2. IME 783 Supply Chain Management
3. DS 725 Global Procurement and Outsourcing

## Dual/Accelerated BBA to Master of Human Resource Management

The dual/accelerated Bachelor of Business Administration to Master of Human Resource Management program is designed to prepare qualified students for graduate work in human resource management at WSU through a coordinated program leading to both degrees. A student in the program is allowed to enroll in courses for graduate credit while completing the requirements for a BBA in human resource management (BBA-HRM).

### Admission

To be considered for admission to the program, the following must be satisfied:

1. An undergraduate GPA of 3.000 overall;
2. Completion of at least 60 credit hours of undergraduate study;
3. Completion of four HRM and/or MGMT classes at the 300 level or above; and
4. Admission recommendation from a member of the HRM or MGMT graduate faculty.

Once a student meets the admission criteria, that student can apply for admission to the program.

The student should apply for admission to the program during the semester prior to the first semester in which they intend to enroll in a course for graduate credit. Students admitted to the dual/accelerated program are allowed to enroll in courses for graduate credit, including 800-level courses, prior to completing undergraduate degree requirements.

Upon admission to the dual/accelerated program the student is granted tentative admission to the Master of Human Resource Management (MHRM) program, pending award of the BBA degree.

Note: A student who has previously been admitted to a graduate degree program at Wichita State may not be admitted to the dual/accelerated program.

### Program Requirements

Following admission to the MHRM program, the student should outline a tentative plan of study in consultation with the MHRM program director. Continuation in the program requires a continuing WSU undergraduate cumulative GPA of at least 3.000 and a GPA of at least 3.000 in courses taken for graduate credit.

At most, 9 credit hours may be joint degree hours — hours taken for graduate credit at the 700 level or above that are also applied to the bachelor's degree. If this deviation is requested, joint-degree hours may not include workshop courses, undergraduate core curriculum courses, cooperative education courses, or courses that are prerequisite for the graduate program. A course taken for joint credit must be so identified at the time of enrollment in that course. Where courses specify different requirements for graduate and undergraduate students (500–799), the student must meet the requirements for graduate students to apply the course to graduate credit.

## Dual/Accelerated BBA to MS in Management Science and Supply Chain Management

### Admission

To be considered for admission to the program, the following must be satisfied:

1. An undergraduate GPA of 3.000 overall;
2. Completion of at least 60 credit hours of undergraduate study;
3. Completion of four accounting/economics/entrepreneurship/finance/general business/human resource management/international business/information technology and MIS/management/marketing classes at the 300 level or above; and
4. Admission recommendation from a member of the business school graduate faculty.

### Program Requirements

The dual/accelerated bachelor to master's program in the Master of Science in management science and supply chain management (MSSCM) is designed to prepare qualified business school undergraduate students for graduate work in the Master of Science in management science and supply chain management at WSU through a coordinated program leading to both degrees. A student in the program will be allowed to enroll in courses for graduate credit while completing the requirements for a BBA. Once a student meets the admission criteria, she or he can apply for admission to the program.

The student should apply for admission to the program during the semester prior to the first semester in which she or he intends to enroll in a course for graduate credit. Students admitted to the dual/accelerated program will be allowed to enroll in courses for graduate credit, including 800-level courses, prior to completing undergraduate degree requirements. At most, 9 credit hours may be joint degree hours — hours taken for graduate credit at the 700 level (or above) that are also applied to the bachelor's degree. If this deviation is requested, joint-degree hours may not include workshop courses, undergraduate core curriculum courses, cooperative education courses, or courses that are prerequisite for the graduate program. A course taken for joint credit must be so identified at the time of enrollment in that course. Where courses specify different requirements for graduate and undergraduate

students (500–799), the student must meet the requirements for graduate students to apply the course to graduate credit.

A student who has previously been admitted to a graduate degree program at Wichita State may not be admitted to the dual/accelerated program. After initial admission, continuation in the program requires a continuing WSU undergraduate cumulative GPA of at least 3.000 and a GPA of at least 3.000 in courses taken for graduate credit.

Upon admission to the dual/accelerated program, the student is granted tentative admission to the Master of Science in management science and supply chain management program, pending award of the BBA degree. The student should outline a tentative plan of study in consultation with the MS in MSSCM program director.

### Applied Learning

Students in the Dual/Accelerated BBA to MS in management science and supply chain management program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing a project, a thesis or the following required classes:

1. DS 850 Operations Management
2. IME 783 Supply Chain Management
3. DS 725 Global Procurement and Outsourcing

## Certificate in Advanced Business Fundamentals

Individuals who hold an undergraduate degree in business may like to extend their skills and ability to manage organizations. The graduate certificate in advanced business fundamentals is designed for these individuals. The certificate provides business knowledge to handle day-to-day business operations, manage workplace issues and improve business processes. The certificate provides advanced knowledge on major disciplines within the field of business. The business knowledge acquired through the certificate will be applicable immediately on the job. The advanced business fundamentals certificate is designed to be part of the Master of Business Administration (MBA) program, and the courses that comprise the certificate can be applied toward the MBA program. Furthermore, completing the certificate allows the student to apply for an exemption from the standardized testing requirements if they are interested in pursuing the MBA degree. The certificate can be completed online or in a hybrid online format.

### Admission

**New graduate students:** Applicants to the graduate certificate in advanced business fundamentals are required to meet Graduate School requirements for nondegree, Category A admission. The graduate certificate should be selected as the intended program in the Graduate School application.

**Current WSU graduate students:** To apply for the certificate program, submit the Graduate School's Declaration of Intent to Pursue a Graduate Certificate form, located on the Graduate School's web page. With department approval, the student may then be admitted to the certificate program. All Graduate School and department admission requirements apply. International students may enroll in the certificate program, but must ensure it complies with their visa requirements. Students should contact the office of graduate studies in business to inform them of their intent to enroll in the program.

### Program Requirements

Students must complete four courses from the following list to earn the certificate. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

Course	Title	Hours
ECON 804	Managerial Economics	3
MGMT 803	Business Decision Making and Analysis	3
or MKT 803	Marketing Analysis	
ACCT 801	Managerial Accounting	3
or FIN 850	Managerial Finance	
MKT 801	Marketing Management	3
MGMT 862	Organizational Behavior	3

## Certificate in Business Analytics

The certificate in business analytics is aimed at providing students with exposure to a variety of data management approaches, analytical and statistical methods, and analytics tools used in the industry to run and manage analytics programs. The courses provide extensive exposure on concepts, tools and applications in the domain of analytics. In addition to providing hands-on training on various tools, the certificate in business analytics imparts skills on creating and maintaining a culture of evidence and fact-based decision making.

### Program Requirements

The certificate requires satisfactory completion of four of the following 3-credit-hour courses for a total of 12 credit hours.

Course	Title	Hours
Select four courses from the following		12
ECON 731	Applied Econometrics	
ECON 803	Analysis of Business Conditions and Forecasting	
BSAN 875	Advanced Business Analytics	
IME 724	Statistical Methods for Engineers	
IME 835	Applied Forecasting Methods	
MIS 750	Business Intelligence and Analytics	
MIS 884	Database Planning & Management	
SMGT 800	Analytics and Decision Making In Sport	

Total Credit Hours 12

In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

## Certificate in Business Fundamentals

Individuals who hold undergraduate degrees in nonbusiness related fields are given managerial responsibilities as they progress in their careers. The graduate certificate in business fundamentals is designed for these individuals. The certificate provides business knowledge so these individuals will be able to handle day-to-day business operations, manage workplace issues and develop positive business relationships. The program provides an introduction to the major disciplines within the field of business, and the opportunity to quickly gain business knowledge that is applicable immediately on the job. The business fundamentals certificate is designed to be part of the Master of Business Administration (MBA) program, and the courses that comprise the business fundamentals certificate can be applied toward the MBA program. Furthermore, completion of the certificate allows students to

apply for an exemption from the standardized testing requirements if they are interested in pursuing the MBA degree. The certificate can be completed only in an online format.

### Admission

**New graduate students:** Applicants to the graduate certificate in business fundamentals are required to meet Graduate School requirements for nondegree, Category A admission. The graduate certificate should be selected as the intended program in the Graduate School application.

**Current WSU graduate students:** To apply for the certificate program, submit the Graduate School's Declaration of Intent to Pursue a Graduate Certificate form, located on the Graduate School's web page. With department approval, the student may then be admitted to the certificate program. All Graduate School and department admission requirements apply. International students may enroll in the certificate program, but must ensure it complies with their visa requirements. Students should contact the office of graduate studies in business to inform them of their intent to enroll in the program.

### Program Requirements

Students need to complete the following courses to earn the certificate:

Course	Title	Hours
MBA 802	Fundamentals of Accounting	1.5
MBA 803	Fundamentals of Finance	1.5
MBA 804	Marketing Basics	1.5
MBA 805	Management Basics	1.5
ECON 811	Analysis of Macro-Economic Theory	1.5
ECON 812	Analysis of Micro-Economic Theory	1.5
MGMT 862 or MIS 874	Organizational Behavior Management Information Systems	3
Total Credit Hours		12

In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

## Certificate in Entrepreneurship and Innovation

### Program Requirements

This certificate is aimed at providing students the knowledge base in entrepreneurship to undertake moving technological expertise or high potential business ideas through the start-up of high-growth businesses. The courses are designed to provide extensive conceptual and applied know-how and expertise to students interested in entrepreneurship. This program requires the completion of four of the following 3-credit-hour courses. There are no prerequisite courses for the certificate program. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

Course	Title	Hours
Select four of the following:		12
ENTR 620	Growing and Managing an Entrepreneurial Firm	
ENTR 690	Special Topics in Entrepreneurship	
ENTR 705	Technology Entrepreneurship	
ENTR 706	Seminar in New Product and Technology Development	

ENTR 855	Entrepreneurial Finance Seminar	
ENTR 865	Entrepreneurship, Creativity and Innovation	
ENTR 890	Seminar Special Topics	
Total Credit Hours		12

## Certificate in Human Resource Management Decision Making

The graduate certificate in human resource management decision making is designed to provide individuals who are currently working training in human resource analytics, rewards and strategic HRM.

### Admission

To be admitted to the HRM decision making certificate program, an applicant must:

1. Possess an undergraduate degree;
2. Submit a statement that articulates the applicant's reason for seeking admission to the program (500 words maximum); and
3. Submit a current resume.

### Program Requirements

The HRM decision making certificate consists of 15 credit hours. Twelve (12) of the credit hours comprise four required courses. The remaining 3 credit hours are satisfied by completing an elective course. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

Course	Title	Hours
<b>Required Courses</b>		
HRM 803	Human Resource Analytics	3
HRM 868	Rewards	3
HRM 885	Strategic Human Resource Management	3
MGMT 885	Advanced Strategic Management	3
<b>Electives</b>		
Select one of the following		3
MIS 874	Management Information Systems	
MKT 803	Marketing Analysis	
IB 836	International Business and Competitiveness	
ECON 804	Managerial Economics	
Total Credit Hours		15

## Certificate in Human Resource Management Skills

The graduate certificate in human resource management skills is designed for individuals who are currently working who need training in human resource selection, talent development and employment law.

### Admission

To be admitted to the HRM skills certificate program, an applicant must:

1. Possess an undergraduate degree;
2. Submit a statement that articulates the applicant's reason for seeking admission to the program (500 words maximum); and
3. Submit a current resume.

### Program Requirements

The HRM skills certificate consists of 15 credit hours. Twelve (12) of the credit hours comprise four required courses. The remaining 3 credit hours are satisfied by completing an elective course. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

Course	Title	Hours
<b>Required Courses</b>		
HRM 665	Employment Law	3
MGMT 862	Organizational Behavior	3
HRM 866	Selection	3
HRM 869	Talent Development	3
<b>Electives</b>		
Select one of the following elective courses		3
BLAW 810	Law and Ethics for Business	
MGMT 662	Managing in Diverse Organizations	
DS 850	Operations Management	
Total Credit Hours		15

## Certificate in Supply Chain Management

### Program Requirements

This certificate is aimed at equipping students with a knowledge of supply chain practices used by companies around the world. The courses are structured to provide extensive conceptual and applied information about supply chain management. The curriculum is jointly offered by the decision sciences faculty in the School of Business and the industrial, systems and manufacturing engineering faculty in the College of Engineering.

This program requires satisfactory completion of four courses from the following list of courses, at least one course from both engineering and business is required. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

Course	Title	Hours
Select four courses from the following (at least one course must be taken in each area)		
<b>Engineering Courses</b>		
IME 553	Production Systems	3
IME 767	Lean Manufacturing	3
IME 783	Supply Chain Management	3
IME 880Y	Forecasting and Analytics	3
IME 883	Supply Chain Analytics	3
<b>Business Courses</b>		
DS 725	Global Procurement and Outsourcing	3
DS 790	Global Logistics and Transportation Management	3
DS 850	Operations Management	3
DS 870	Risk Management in Global Supply Chains	3



## Engineering, College of

Steven Skinner, *interim dean*

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College of Engineering Webpage (<http://wichita.edu/engineering/>)<sup>1</sup>

Steven Skinner, *associate dean, undergraduate studies, finance and administration*

Janet Twomey, *associate dean, graduate studies, research and faculty success*

Jason Bosch, *scholarship coordinator*

### Departments

**Aerospace**, 316-978-3410 — L. Scott Miller, *chairperson*; Suresh Keshavanarayana, *master's graduate coordinator*; Klaus Hoffmann, *doctoral graduate coordinator*

**Biomedical**, 316-978-7582 — Michael Jorgensen, *chairperson*; Nils Hakansson, *graduate coordinator*

**Computing, School of**, 316-978-3156 — Gergely Zaruba, *chairperson, PhD academic advisor and graduate coordinator (PhD in Electrical Engineering and Computer Science)*; Sourabh Bose, *graduate coordinator (MS in Computer Science, MS in Computing, MS in Data Science)*

**Electrical and Computer Engineering**, 316-978-6324 — Visvakumar Aravinthan, *chairperson, PhD academic advisor and graduate coordinator (PhD in Electrical Engineering and Computer Science, MS in Electrical and Computer Engineering)*

**Engineering Technology**, Gary Brooking, *chairperson*

**Industrial, Systems and Manufacturing Engineering**, 316-978-3425 — Krishna Krishnan, *chairperson*; Deepak Gupta, *graduate coordinator*

**Mechanical**, 316-978-3402 — Tiruvadi (TS) Ravigururajan, *chairperson*; Ikram Ahmed, *graduate coordinator*

The College of Engineering offers graduate programs leading to a:

- Master of Science (MS) in:
  - Aerospace engineering,
  - Biomedical engineering,
  - Computer science,
  - Computing,
  - Data Science,
  - Electrical and computer engineering,
  - Industrial engineering, and
  - Mechanical engineering.
- Master of Engineering Management (MEM)
- Doctor of Philosophy (PhD) in:
  - Aerospace engineering,
  - Biomedical engineering,
  - Electrical engineering and computer science,
  - Industrial engineering, and
  - Mechanical engineering.

Areas of specialization can be found in the individual departmental sections. The graduate programs are enhanced by the presence of the industrial complex in Wichita and of the National Institute for Aviation Research on the Wichita State campus.

A number of certificate programs are also offered through the College of Engineering. See Graduate Certificates for information.

Only students admitted to the College of Engineering or the Graduate School will be allowed to enroll in engineering courses. The academic dean will consider petitions for exceptions to the preceding statement because of legitimate reasons for qualified non-engineering students enrolling in engineering courses.

### Professional and Scholarly Integrity Training

Graduate students in the College of Engineering must complete the following four modules provided by Collaborative Institutional Training Initiative (CITI) as part of their graduation requirements:

1. Research misconduct;
2. Responsible authorship in engineering;
3. Conflicts of interest in engineering research; and
4. Ethical issues in management of data in engineering research.

It is the student's responsibility to show evidence of the completion of the above four modules at the time of filing the plan of study.

<sup>1</sup> Link opens new window.

### Graduation Requirements

#### Master of Science

#### Admission Requirements

To be admitted to the MS program, students must have completed the equivalent of an undergraduate degree in an engineering or related field. Students with deficiencies in certain areas may be required to take additional courses. Master's engineering programs require a minimum GPA of 3.000/4.000 for admission to full standing, 2.750/4.000 for admission on probation, and 2.500/4.000 for admission to nondegree, Category B. For some programs, GPAs are based on the last two years or approximately 60 credit hours of coursework. Other programs consider cumulative GPAs. These standards may be waived at the discretion of the individual department based on an applicant's other qualifications. Scores for the general test of the Graduate Record Examination (GRE) are recommended for all students applying from non-U.S. institutions.

Consult departmental admission sections of this catalog for additional admission requirements.

#### Program Requirements

The MS degree requires the completion of a plan of study approved by the student's advisor and the department graduate coordinator, which must be filed within the first 12 credit hours of graduate coursework.

Three options are available:

1. The thesis option:

Course	Title	Hours
Select a minimum of 24 credit hours of coursework		24
Select a minimum of 6 credit hours of thesis		6
Total Credit Hours		30

2. The directed project option:

Course	Title	Hours
Select a minimum of 30 credit hours of coursework		30
Select a minimum of 3 credit hours of directed project		3
Total Credit Hours		33

3. The coursework option:

Course	Title	Hours
Select a minimum of 33–36 credit hours of coursework		33-36
Total Credit Hours		33-36

At least 60 percent of the credit hours in the plan of study must be 700-level or above. Additional details of the MS degree may be obtained from the department graduate coordinator.

#### Examination

Before the MS degree is granted, candidates in the thesis option must pass an oral examination over the thesis. Candidates in the directed project option must give an oral presentation and submit a written report on their directed project. Candidates in the coursework option may be required to pass a written exit exam. Details of the exit exam can be obtained from the department graduate coordinator.

#### Doctor of Philosophy

PhD programs are offered by four of the departments of engineering at WSU. Typical fields of specialization can be found in the individual departmental sections. These fields will be used in determining testing areas for the comprehensive examination in the major and minor fields.

#### Admission Requirements

Admission to any PhD program in engineering requires that the student has completed (or nearly completed) a master's degree in engineering or physical science. A grade point average of at least 3.250 in all graduate-level coursework is required for admission. The College of Engineering also offers direct admission to some PhD programs for exceptional students with a BS degree in engineering or related areas. Direct admission to PhD program requirements vary by program. Please refer to specific engineering graduate programs for admission requirements.

In some programs, scores for the general test of the Graduate Record Examination (GRE) must be submitted. Some students may find it necessary to take prerequisite courses to be able to meet the course breadth requirements. The student is recommended to the graduate dean for admission by the department chairperson in consultation with the graduate coordinator of the department where the graduate student will be housed.

Consult departmental admission sections of this catalog for additional admission requirements.

#### Plan of Study and Advisory Committee

Within the first 12 credit hours of PhD coursework, the department chairperson, in consultation with the graduate coordinator and the student, recommend to the graduate dean an advisory committee for each student. The committee will be composed of a minimum of five members, with at least four having graduate faculty status including the chairperson. A majority of the advisory committee members must be from the major department and at least one member must be outside the student's major department. The chairperson of the advisory committee should be the student's dissertation advisor. The student and advisory committee chairperson will formulate a plan of study and a tentative dissertation topic for approval by the advisory committee, the department chairperson or graduate coordinator, and the graduate dean. The plan of study will include all graduate-level coursework which is applicable to the degree.

A PhD plan of study should contain a minimum of 72 total credit hours with the following requirements:

- A minimum of 24 dissertation credit hours.
- A minimum of 36 credit hours of coursework, including a maximum of 24 credit hours from a master's degree.
- 12 credit hours of additional coursework, dissertation, or a combination of both.

#### Comprehensive Examination

Refer to the individual program's or department's requirements for the PhD comprehensive or qualifying examination. Upon passing the comprehensive examination, a student is known as a PhD aspirant.

#### Time Limits and Residency Requirement

From the time the student is admitted to the program, no more than 10 years may elapse until requirements for the degree have been completed. However, the student may petition the advisory committee for a leave of absence to pursue full-time professional activities related to his or her doctoral program and long-range professional goals. At least two semesters shall be spent in residency on the WSU campus involved in full-time academic pursuits. This may include up to half-time teaching and research. Well-designed plans for obtaining dissertation research experience under the supervision of the student's advisor will be considered in lieu of the residency requirement.

#### Dissertation Approval Examination (DAE)

When the PhD aspirant has completed the major portion of the coursework, the advisory committee can petition for permission to administer the DAE. The aspirant submits a written dissertation proposal to the advisory committee. After reading the proposal, the advisory committee conducts an oral examination to determine the aspirant's ability to carry out the proposed research and whether or not this research qualifies as a PhD dissertation. Any essential change in the project requires committee approval.

After passing the DAE, the student is known as a candidate for the PhD degree. Upon notification to the graduate dean of a successful DAE, the student's doctoral committee is officially acknowledged and recorded by the Graduate School. A candidate must be continuously enrolled in PhD Dissertation for a minimum of 6 credit hours each semester and 2 credit hours in the summer session until completion of the dissertation or 24 credit hours of PhD Dissertation have been taken. After this, 2 credit hours per semester are required. In any case, no less than 24 credit hours of enrollment for PhD Dissertation will be required. The dissertation may be performed in absentia with the approval of the advisory committee.

#### Final Dissertation Examination

The student must defend the dissertation before the advisory committee. At least five months must elapse between the DAE and the final examination. The final examination will be open to the public. Invited guests or external examiners may be invited if the committee desires.

#### Courses in the College of Engineering

- Aerospace Engineering (AE) (p. 255)
- Applied Computing (AC)<sup>1</sup>
- Biomedical Engineering (BME) (p. 273)
- Computer Science (CS) (p. 310)
- Electrical Engineering (EE) (p. 325)<sup>2</sup>
- Engineering Technology (ENGT) (p. 337)
- Industrial and Manufacturing Engineering (IME) (p. 357)
- Mechanical Engineering (ME) (p. 366)

<sup>1</sup> New course subject in development at time of catalog publication. Check with department for list of available courses.

<sup>2</sup>EE subject courses in the process of changing to subject code ECE (Electrical and Computer Engineering) at the time of catalog publication. Check with department for list of available courses.

## Graduate Certificates

### Certificate in Advanced Composite Materials

The College of Engineering offers a graduate certificate program in the area of advanced composite materials.

This program is designed to equip students with a knowledge of advanced composite materials including materials and processes, manufacturing, and structural analysis and design.

The array of courses is structured to provide extensive information about advanced composite material technologies, analyses associated with composite materials, and processing of composite materials.

Students seeking this certificate must be admitted to the Graduate School in either a graduate degree program or in a nondegree, Category A status. All Graduate School policies relative to admissions apply.

#### Program Prerequisites

Course	Title	Hours
MATH 555	Differential Equations I	3
AE 333	Mechanics of Materials	3
ME 250	Materials Engineering	3

#### Program Requirements

This program requires satisfactory completion of the following courses (a total of 12 credit hours):

Course	Title	Hours
ME 672	Manufacturing of Composites	3
AE 753	Mechanics of Laminated Composites	3
ME 762	Polymeric Composite Materials	3
Select one of the following:		3
AE 853	Advanced Mechanics of Laminated Composites	
Graduate level directed studies or special topics course in a composites related area approved by the COE Advanced Composites Committee		
Total Credit Hours		12

Students pursuing a graduate certificate must submit a plan of study request to complete the certificate. Students may apply certificate coursework toward a degree program.

A cumulative grade point average of 3.000 must be maintained for all courses comprising the certificate program with no grades below C.

In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

International students will not be issued an I-20 for pursuing a certificate program only, but they may obtain a certificate while concurrently pursuing a graduate degree.

### Certificate in Engineering Education

The College of Applied Studies, in conjunction with the College of Engineering, offers the graduate certificate in engineering education. The graduate certificate in engineering education is designed to:

1. Provide engineering graduate students with knowledge of contemporary learning theories that can be applied to university-level instruction;
2. Provide engineering graduate students with knowledge and skills in classroom testing and program evaluation;
3. Provide engineering graduate students with knowledge of pedagogical skills that can be applied to university-level instruction;
4. Provide engineering graduate students with the skills to apply knowledge of learning theory, pedagogical theory and measurement theory in an authentic university setting.

This certificate program provides joint mentorship from College of Applied Studies and College of Engineering faculty members. Students who plan to apply for university teaching positions after graduation need to be competitive in a market that demands good teaching as well as good research. The engineering education certificate will give WSU graduates a competitive edge.

#### Admission

Students seeking this graduate certificate program must be Wichita State University engineering graduate students in good standing either in a degree-bound program or in nondegree, Category A status. Students should contact the Graduate School to determine if they need to apply for admission to this status or need to reactivate their enrollment file. Students who have not completed graduate coursework at Wichita State University will need to apply for admission to degree status or nondegree, Category A status in an appropriate area of engineering by submitting an application and application fee to the Graduate School. An official transcript from each school attended must be sent directly to the Graduate School from the institution issuing the transcript or must be submitted to the Graduate School office in envelopes sealed by the issuing institution, if issued to student.

#### Program Requirements

##### Background Check

Upon admission and prior to their first semester, all applicants admitted to this program must clear a criminal background check. There are two reasons for this requirement. First, it is part of the university's due diligence before placing students in field settings. Second, the check may alert applicants or students to issues that may subsequently affect their ability to work in their chosen field. In instances when a person's criminal history raises reasonable concerns that should be cleared to engage in the field experiences and/or subsequently obtain licensure/endorsement, WSU may take a range of actions, including rescission of admission or dismissal from the program, depending on the nature of the concern.

For information regarding this requirement, visit: Advanced Programs (<https://wichita.edu/clesadvancedprograms/>)<sup>1</sup>.

#### Curriculum

The following courses are required for completion of this certificate:

Course	Title	Hours
CESP 820	Learning Theory and Instruction (spring)	3
CESP 811	Principles of Measurement and Program Evaluation (spring)	3
CI 816	Advanced Methods: Developing Critical and Creative Thought (spring)	3

CI 816A	Internship: Developing Critical and Creative Thought (fall)	3
Total Credit Hours		12

### Completion Requirements

A cumulative graduate GPA of 3.000 for all courses comprising the certificate program is required. No grades below C (2.000) are allowed in certificate program courses. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

Completion process:

1. Students must notify the program area, in writing, of intent to complete the certificate.
2. In the semester the certificate requirements are met students must:
  - a. With graduate advisor, prepare and submit to the Graduate School a plan of study for the certificate.
  - b. Submit to the Graduate School an application for the certificate along with the required filing fee.

Deadlines are no later than the 20th day of fall or spring semester, or the 10th day of a summer term.

<sup>1</sup> Link opens new window.

## Aerospace Engineering

The department of aerospace engineering offers programs leading to Master of Science (MS) and Doctor of Philosophy (PhD) degrees. Faculty research provides valuable educational opportunities for graduate students. Current research topics include acoustics, aeroelasticity, aerothermodynamics, aircraft dynamic loads, aircraft flight dynamics, aircraft icing, airfoil design and rotor aerodynamics, artificial neural networks, composite materials, computational fluid dynamics, computational solid mechanics, continuum damage and fracture mechanics, damage tolerance, design, experimental aerodynamics, finite element analysis, flight dynamics and control, flight mechanics, hypersonics, intelligent control, laser velocimetry, solid mechanics, structural dynamics, and theoretical and applied aerodynamics.

The department's research and instructional facilities are among the finest in the nation. They include an astronautics lab, four wind tunnels, a water tunnel, a flight simulation lab, a structural testing lab, a small-aircraft prototype lab, a propulsion lab and a controls lab. Graduate students have opportunities to use the equipment in all laboratories for their research projects. Students also may use the research facilities in the university's National Institute for Aviation Research, including a composite materials lab and a crash dynamics lab. Computer facilities for students include mainframe terminals, high performance workstations and various personal computers.

The department's programs are enhanced by Wichita's aviation heritage and the presence of major aerospace companies in the city, including Airbus, Bombardier Aerospace, Spirit AeroSystems and Textron Aviation (Beechcraft and Cessna).

Graduate coursework is scheduled so that engineers employed in the local industry may conveniently pursue graduate degrees.

### Programs in Aerospace Engineering

- PhD in Aerospace Engineering (p. 132)
- MS in Aerospace Engineering (p. 133)

### Courses in Aerospace Engineering

- Aerospace Engineering (AE) (p. 255)

*Note:* All graduate courses must be approved in advance of enrollment by a student's graduate advisor.

## PhD in Aerospace Engineering

### Students Admitted with a Master of Science

Courses of study leading to the Doctor of Philosophy (PhD) degree are available with specializations in

- Aerodynamics and fluid mechanics;
- Structures and solid mechanics;
- Flight dynamics and control; and
- Multidisciplinary analysis and design.

### Program Requirements

The total number of credit hours for a PhD in aerospace engineering is 72. The plan of study must include a minimum of 24 credit hours of dissertation, 36 credit hours of coursework, including up to 24 credit hours of relevant coursework from the MS degree. In addition, 12 credit hours must be taken as coursework, dissertation or a combination of both.

The plan of study will include:

Course	Title	Hours
Select one of the following major areas		15
Aerodynamics and Fluid Mechanics		
AE 711	Intermediate Aerodynamics	
AE 716	Compressible Fluid Flow	
AE 812	Aerodynamics of Viscous Fluids	
Structures and Solid Mechanics		
AE 722	Finite Element Analysis of Structures I	
AE 731	Theory of Elasticity	
AE 777	Vibration Analysis	
Flight Dynamics and Controls		
AE 707	Modern Flight Control System Design I	
AE 714	Advanced Flight Dynamics I	
AE 773	Intermediate Dynamics	
Multidisciplinary Analysis and Design (see advisor for details)		
Select 15 credit hours outside the major area		15
The student must declare a minor area defined by the advisory committee and select 6 credit hours in the minor (included in the 15 credit hours outside the major)		
Select a minimum of 6 credit hours of mathematics/statistics		6
Select 12 credit hours of coursework, dissertation or a combination of both		12
Select 24 credit hours of Dissertation		24
AE 976	PhD Dissertation	
Total Credit Hours		72

See College of Engineering (p. 129) for requirement details.

### Graduate Courses

All graduate courses must be approved in advance of enrollment by a student's graduate advisor.

### Applied Learning

Students in the PhD in aerospace engineering - postmaster's degree program are required to complete an applied learning or research

experience to graduate from this program. The requirement can be met by successful completion and presentation of a dissertation.

### Students Admitted with a Bachelor of Science

#### Admission

Applicants with a Bachelor of Science degree in aerospace engineering or a closely-related field must have:

1. A minimum grade point average of 3.250/4.000 over the last two years or approximately 60 credit hours, and
2. A letter of recommendation from a faculty member in the department of aerospace engineering at Wichita State University stating that he/she would be the student's academic and research advisor.

#### Continuation:

For the student to remain in the program, he/she must:

1. Maintain a minimum graduate GPA of 3.250/4.000 for every semester over the first 30 credit hours. Failing to do so, the student will be transferred to the Master of Science program in the appropriate category (full standing or on probation), or dismissed from graduate standing.
2. Demonstrate active involvement in research by producing publications in national/international conferences or journals by the completion of the first 30 graduate credit hours.

#### Qualifying Examination:

1. The qualifying exam is intended to reinforce and link pertinent high-level fundamentals. Upon passing the qualifying examination, a student is known as an aspirant for the PhD.
2. The exam, which covers major field core courses, is offered three times annually and may not be attempted more than twice.
3. The current guidelines require passing the qualifying exam with an 80 percent average with no single portion below 70 percent.
4. Students who fail to take the exam within three semesters (one year) from first enrollment, lose an attempt. Students failing to pass the exam within four semesters from first enrollment, are dismissed from the program.
5. Students who are dismissed from the doctoral program will be allowed to use the course credit hours completed toward a master's degree in aerospace engineering. However, the student must fulfill the master's thesis or project requirement.
6. A student who was dismissed from the AE doctoral program, *but went on to successfully complete a master's degree* in aerospace engineering, will not be allowed to enroll in the AE doctoral program again in the future.

#### Time Limits and Residency Requirement:

From the time the student starts to enroll in the program, no more than 10 years may elapse until all requirements for the degree have been completed.

#### Other Program Requirements:

All other program requirements are the same as those for the existing doctoral program (admission following the completion of a master's degree).

#### Applied Learning

Students in the PhD in aerospace engineering - postbaccalaureate degree program are required to complete an applied learning or research experience to graduate from this program. The requirement can be met by successful completion of a dissertation.

## MS in Aerospace Engineering

Courses of study leading to the MS degree are available with specialization in any of the following four fields:

- Aerodynamics and fluid mechanics;
- Structures and solid mechanics;
- Flight dynamics and control; and
- Multidisciplinary analysis and design.

### Program Requirements

Students must complete the following requirements:

Course	Title	Hours
<b>AE Core Options</b>		
Select one of the following groups of core classes based on student's chosen specialty <sup>1</sup>		9
<i>Aerodynamic and Fluid Mechanics</i>		
AE 711	Intermediate Aerodynamics	
AE 716	Compressible Fluid Flow	
AE 812	Aerodynamics of Viscous Fluids	
<i>Structures and Solid Mechanics</i>		
AE 722	Finite Element Analysis of Structures I	
AE 731	Theory of Elasticity	
AE 777	Vibration Analysis	
<i>Flight Dynamics and Controls</i>		
AE 707	Modern Flight Control System Design I	
AE 714	Advanced Flight Dynamics I	
AE 773	Intermediate Dynamics	
<i>Multidisciplinary Analysis and Design (see advisor for details)</i>		
Select one graduate-level course in mathematics/statistics with the approval of the department.		3
<b>Terminal Options</b>		
Select one of the following options		18-21
<i>Thesis Option</i>		
Select four other graduate-level classes with the approval of the advisor		
AE 876	Thesis (a minimum of 6 credit hours)	
<i>Directed Project Option</i>		
Select six other graduate-level courses with the approval of the advisor		
AE 878	MS Directed Project (minimum of 3 credit hours)	
<i>Coursework Option</i>		
Select seven other graduate-level courses with the approval of the advisor		
Pass an exam covering the core courses in the area of specialty <sup>2</sup>		
Total Credit Hours		30-33

<sup>1</sup> Other graduate-level courses may be substituted for any of these nine courses that have been taken as a part of the undergraduate program.

<sup>2</sup> The coursework option exam is offered three times a year. Contact the MS program coordinator to confirm scheduled dates and to register to take the exam (at least 30-days prior to scheduled exam date).

See College of Engineering (p. 129) for requirement details.

**Graduate Courses**

All graduate courses must be approved in advance of enrollment by a student's graduate advisor.

**Applied Learning**

Students in the MS in aerospace engineering program are required to complete an applied learning or research experience to graduate from this program.

For students choosing the thesis option, the requirement can be met by completing AE 876.

For students choosing the directed project option, the requirement can be met by completing AE 878.

For students choosing the coursework option, students must also successfully complete an Applied Learning Activity (ALA) by enrolling in a 0-credit hour applied learning course with an AE professor.

**Biomedical Engineering**

The department of biomedical engineering offers research-based programs leading to Master of Science (MS) and Doctor of Philosophy (PhD) degrees, as well as an instructional-based graduate certificate in biomaterials and tissue engineering. Graduate students participate with faculty in their research, where departmental faculty have developed research activities in the following areas of specialization:

- Biomaterials, surface modification of biometallic alloys, biodegradable metallic implants, 3D-printing and additive manufacturing;
- Musculoskeletal biomechanics, human movement computer simulation, rehabilitation engineering and technology, human movement coordination;
- Cardiovascular mechanobiology, cell-tissue biophysics, instrumentation/devices to understand cell and tissue mechanobiology, identifying novel surrogate markers of diseases, gene regulation, cell and tissue engineering;
- Brain-machine interface, neural signal processing, prosthesis, cognitive neuroscience, biomechanics, rehabilitation robotics;
- Biosensors, Raman spectral analysis, peripheral artery disease muscle imaging, hyperspectral imaging, biomedical instrumentation design; and
- Flexible/Stretchable electronics for human health monitoring, human-machine interfaces via wearable electronics, fabrication of micro/nano-structures, and nano-biosensors for disease diagnostics.

Graduate students in the MS and PhD programs have access, through instruction and research activities, to the department's research and instructional facilities, which include:

- Biomaterials Lab
- Multidisciplinary Human Biomechanics and Design Lab
- Biomedical Sensors, Imaging and Modeling Lab
- Mechanobiology and Biomedicine Lab
- Neuro-Robotics Lab
- Bio-Integrated Electronics and Systems Lab

**Programs in Biomedical Engineering**

- PhD in biomedical engineering (p. 134)
- Master of Science in biomedical engineering (p. 135)
- Dual/Accelerated BS to MS in biomedical engineering (p. 135)

**Certificates in Biomedical Engineering**

- Certificate in Biomaterials and Tissue Engineering (p. 136)

**Courses in Biomedical Engineering**

- Biomedical Engineering (BME) (p. 273)

**PhD in Biomedical Engineering****Admission**

The minimum requirements for admission to the PhD in biomedical engineering program include:

- A master's or bachelor's degree in a discipline relevant to biomedical engineering;
- A transcript from each institution attended;
- For students admitted from an undergraduate degree: A minimum GPA of 3.500 for all undergraduate coursework and a minimum GPA of 3.250 for any completed graduate coursework;
- For students admitted from a master's degree: A minimum GPA of at least 3.250 for all graduate-level coursework;
- A statement of purpose including a section on research interests;
- Graduate Record Examination (GRE) scores;
- Three letters of recommendation; and
- English proficiency examination for international applicants who have not studied at an English speaking university: TOEFL or other university approved examination.

Students entering the biomedical engineering PhD program are expected to have already completed the following courses or their equivalents:

Course	Title	Hours
Biology I		
Anatomy and Physiology		
General Chemistry		
Chemistry I		
Chemistry II		
Physics I		
Math		
Calculus I		
Calculus II		
Differential Equations		
Circuits		
Thermodynamics		
Statics		
Statistics		
Programming		

If prerequisite coursework deficiencies exist, the student may be admitted on a conditional basis. However, students will have one academic year to complete the deficient prerequisite coursework, and there is a maximum of 15 credit hours of prerequisite coursework allowed for students to be admitted. It is recommended that as much of the deficient prerequisite coursework as possible be completed prior to beginning graduate study.

Students entering with a master's degree from a regionally accredited institution (or equivalent international institution) may transfer up to 24 credit hours of degree coursework (excluding independent study and thesis hours).

## Program Requirements

The PhD in biomedical engineering curriculum consists of a minimum of 72 total credit hours which includes:

Course	Title	Hours
36 credit hours of coursework (including a maximum of 24 credit hours from a master's degree)		36
A 0-credit-hour biomedical engineering seminar		
12 credit hours of additional coursework, dissertation or a combination of both		12
A minimum of 24 dissertation credit hours		24
Total Credit Hours		72

Prior to enrolling in dissertation credit hours, a student must pass a qualifying exam under the direction of the research advisor.

As required by the WSU Graduate School, students must also successfully complete the professional and scholarly integrity training (PSIT) by the end of the first year of graduate study at Wichita State University

Before completing 12 PhD credit hours, a student must select an advisor and an advisory committee. With the assistance of the advisor, the student must prepare and submit a plan of study to the BME graduate coordinator and the Graduate School.

### Applied Learning

Students in the PhD in biomedical engineering program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing the dissertation.

## MS in Biomedical Engineering

### Admission

The minimum requirements for admission to the Master of Science in biomedical engineering include:<sup>1</sup>

- A bachelor's degree in a discipline relevant to BME;
- Transcript from each institution attended;
- Minimum undergraduate grade point average (GPA) of 3.000;
- Statement of purpose including a section on research interests;
- Graduate Record Examination scores;
- Three letters of recommendation; and
- Acceptable, official score on the TOEFL, IELTS or PTE-Academic as proof of English proficiency.

<sup>1</sup> Applicants may request a waiver of some of the above requirements (e.g., undergraduate GPA less than 3.000, bachelor's degree not relevant to biomedical engineering, etc.) for admission if sufficient evidence is provided to the BME graduate admissions committee for review.

### Prerequisite Courses

Students entering the biomedical engineering MS program are expected to have already completed the following courses or their equivalents:<sup>2</sup>

Course	Title	Hours
Biology I		
Anatomy and Physiology		
General Chemistry (Chemistry I & II)		
Physics I		
Math		
Calculus I		
Calculus II		

Differential Equations
Circuits
Thermodynamics
Statics
Statistics
Programming

<sup>2</sup> If prior coursework deficiencies exist, the student may be admitted on a conditional basis. It is recommended that as much of the deficient coursework as possible be completed prior to beginning graduate study.

## Program Requirements

The Master of Science in biomedical engineering consists of 30 credit hours including:

Course	Title	Hours
<b>BME Courses</b>		
Select 9 credit hours of 700-level or above graduate level BME courses (excluding BME 890, Independent Study)		9
Seminar in BME		0
<b>Elective Courses</b>		
In consultation with an advisor, select 15 credit hours of elective courses from the following subjects: BME, ME, ECE, CS, IME, AE, BIOL, CHEM, HPS and PSY.		15
<b>Research</b>		
BME 876	Thesis	6
Total Credit Hours		30

### Applied Learning

Students in the MS in biomedical engineering program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by successfully completing the master's thesis (BME 876).

## Dual/Accelerated BS to MS in Biomedical Engineering

The dual/accelerated bachelor's to master's degree program is designed to offer outstanding biomedical engineering students the opportunity for advancing their careers by pursuing the bachelor's and master's degree in a parallel program and accelerated time frame.

### Admission

Undergraduate students apply for the accelerated bachelor's to master's program through the WSU Graduate School application and admission process. Tentative graduate admission does not guarantee final admission to the graduate program and final graduate admission is contingent upon the student meeting all the admission requirements for the BME master's program at the time the bachelor's degree is awarded.

To be considered for admission to the accelerated bachelor's to master's degree program, the following must be satisfied:

- Completion of at least 90 credit hours in the BME program;
- A cumulative undergraduate GPA of at least 3.000; and
- A letter of recommendation from a member of the BME faculty who also will serve as the student's advisor in the accelerated program.

### Dual Credit Courses

A maximum of 9 credit hours can be taken for graduate credit that may also be applied to the bachelor's degree. Courses eligible for joint credit include:

Course	Title	Hours
BME 722	Introduction to Biorobotics	3
BME 735	Biocomputational Modeling	3
BME 738	Biomedical Imaging	3
BME 743	Mechanobiology of Cells and Tissue	3
BME 748	Biomolecular and Cellular Engineering	3
BME 752	Applied Human Biomechanics	3
BME 757	Clinical Biomechanics Instrumentation	3
BME 760A	Brain-Computer Interfaces	3
BME 760B	Biomedical MEMS	3
BME 771	Polymer Processing and Technology	3
BME 777	Biodegradable Materials	3
BME 779	Tissue Engineering	3
ME 709	Injury Biomechanics	3

A course taken for joint credit must be identified at the time of enrollment in that course.

## Certificate in Biomaterials and Tissue Engineering

### Admission

To be considered for admission to the program, applicants must meet the following in addition to the requirements for admission into the Graduate School:

1. A bachelor's degree in a discipline relevant to biomedical engineering from a regionally accredited institution; and
2. Minimum undergraduate GPA of 3.000 on a 4.000 scale.

Students who do not meet the 3.000 grade point average requirement may be admitted to this category on probation if reasonable evidence exists to indicate their ability to perform satisfactorily in 800-level or above coursework.

International applicants requiring an F-1 visa must be admitted into a degree-bound program and will not be admitted directly into the certificate program.

Current graduate students of WSU should complete the Declaration of Intent to Pursue a Graduate Certificate form through the Graduate School website. The admission review faculty may request any of the listed admission requirements before rendering an admission decision.

### Program Requirements

The program requires satisfactory completion of 12 credit hours: two required courses and two elective courses from the list of approved elective courses. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

Course	Title	Hours
<b>Required Courses (6 credit hours)</b>		
BME 771	Polymer Processing and Technology	3
BME 779	Tissue Engineering	3
<b>Approved Elective Courses (6 credit hours)</b>		
Select two of the following approved elective courses		6
BME 748	Biomolecular and Cellular Engineering	

BME 743	Mechanobiology of Cells and Tissue	
BME 777	Biodegradable Materials	
ME 762	Polymeric Composite Materials	
ME 844	Advanced Biomaterials	
BIOL 760	Experimental Molecular Biology	
BME 890	Independent Study	
Total Credit Hours		12

## School of Computing

The School of Computing offers graduate courses of study leading to one or more of the following degrees and/or graduate certificates:

- Master of Science (MS) in:
  - Computer science,
  - Computing, and
  - Data science.
- Graduate certificates in:
  - Computational data science,
  - Computer networking, and
  - Information assurance and cybersecurity.

### Master of Science Degrees

#### Master of Science in Computer Science

The Master of Science in computer science (MSCS) degree program prepares graduate students for career-oriented jobs, or for gaining admission into PhD programs around the world. Its curriculum is designed to ensure that students can study traditional areas of computer science as well as modern research trends in courses taught by active researchers having national and international recognition.

#### Master of Science in Computing

The Master of Science in computing (MSCP) degree provides students from a computing or noncomputing background a top-quality graduate education in computing fundamentals and specializations in concentration areas such as computer networking (CN), cybersecurity (CS), data science (DS) and software engineering (SE). It provides conventional as well as stackable-credential pathways toward completing the degree program. Students have the opportunity to formulate their degree plans into units of graduate certificates in designated concentration areas. The MSCP degree program prepares graduate students for career-oriented jobs in the rapidly growing computing-requiring industry.

#### Master of Science in Data Science

The Master of Science in data science (MSDS) program emphasizes development of the next generation of data scientists and engineers. Students graduating from the program master the skills to build the infrastructure for delivering insights from raw data sources, as well as implement data science pipelines and workflows for acquiring, cleaning, transforming, analyzing and visualizing data to provide descriptive, predictive and prescriptive analytics. The program includes a curriculum to develop sought-after skills in various aspects of data science and engineering to prepare a skilled workforce in the area of data science.

### Programs in the School of Computing

- MS in Computer Science (p. 137)
- MS in Computing (p. 138)
- MS in Data Science (p. 139)

- Dual/Accelerated BS to MS in Computer Science (p. 139)
- Dual/Accelerated BS to MS in Computing (p. 140)

The PhD in electrical engineering and computer science (p. 142) is collaboratively offered by the School of Computing and department of electrical and computer engineering.

### Certificates in the School of Computing

- Certificate in Computational Data Science (p. 140)
- Certificate in Computer Networking (p. 140)
- Certificate in Information Assurance and Cybersecurity (p. 141)
- Certificate in Software Engineering (p. 141)

### Courses in the School of Computing

- Applied Computing (AC)<sup>1</sup>
- Computer Science (CS) (p. 310)

<sup>1</sup> New course subject in development at time of catalog publication. Check with department for list of available courses.

## MS in Computer Science

### Admission

The program admits students with a 4-year bachelor's degree in computer science or a related area. Students from other engineering fields, mathematics or science may be admitted as well with an extra requirement to complete undergraduate level background deficiency courses determined at the time of admission. Such courses will not count towards the MS degree completion requirements.

To be considered for admission to the program the minimum requirements are:

- Student must have earned a GPA of at least 3.000 (or an equivalent score from another country) in the bachelor's degree.
- Students whose bachelor's degree is from an institution outside the U.S. are required to submit official scores of the GRE General Test along with the admission application. However, there is no minimum score requirement.
- Applicants whose native language is not English must provide English proficiency exam scores. One of the following is required: TOEFL score at or above 79 in internet-based exam or IELTS score at or above 6.5.

Letters of recommendation are optional but encouraged, especially if the student's GPA and/or GRE do not truly reflect the student's skills and/or abilities.

### Program Requirements

Students must choose one of the three graduating options: thesis, project or coursework#only. A total of 30 credit hours of graduate work is required for all options. All courses must be approved by the student's advisor and the graduate coordinator. Students are advised to consult their advisor (if thesis or project option) or graduate coordinator (if coursework only option) before taking any courses especially if they are below 600 level or offered outside the department (i.e., for courses that are not EE or CS prefixed).

Students are strongly advised to choose their area of specialization in consultation with their advisor and/or graduate coordinator before completing their first semester. To ensure that students take relevant courses, students should seek approval from their advisor or graduate coordinator at each semester unless they have filed a plan of study.

Courses that are taken without prior approval may affect the plan of study process, if deemed not to satisfy the graduation requirements.

### Graduating Options

#### Thesis Option

Students need to complete an in-depth research project. Students should conduct extensive literature review, identify gaps, propose a research question, and seek a solution to the research question. This is ideal for students who desire to develop their research skills or plan to pursue a research career. Students will defend their findings to their thesis committee. One out of the three committee members must be outside the home department. Students are encouraged to take 6 credit hours of individual reading courses with their advisors leading to taking thesis credits.

Course	Title	Hours
CS 721	Advanced Algorithms and Analysis	3
CS 892	Thesis	6
Select 21 credit hours of graduate courses		21
At most 6 credit hours of CS 893 Individual Reading or Project		
At most 6 credit hours below 700 level		
At most 6 credit hours of non-EE or non-CS prefixed courses		
At least 12 credit hours of 800 level or above courses with EE or CS prefixes		
Total Credit Hours		30

#### Project Option

Students solve a specific problem or an issue of significance. Typically, students will find and implement a solution to the problem identified. The problem and its solution might be less original compared to the thesis option. Students will identify a problem, define a solution approach, implement it, collect necessary data and analyze. Students will submit a written project report to a committee of three faculty members (with graduate status) and present their findings. Students are encouraged to take 3 credit hours of individual reading courses with their advisors leading to taking project credits.

Course	Title	Hours
CS 721	Advanced Algorithms and Analysis	3
CS 891	Project	3
Select 24 credit hours of graduate courses		24
At most 3 credit hours of CS 893 Individual Reading or Project		
At most 6 credit hours below 700 level		
At most 6 credit hours of non-EE or non-CS prefixed courses		
At least 12 credit hours of 800 level or above courses with EE or CS prefixes		
Total Credit Hours		30

#### Coursework Option

Course	Title	Hours
CS 721	Advanced Algorithms and Analysis	3
Select 27 credit hours of graduate courses		27
No credit hours of CS 893 Individual Reading or Project		
At most 6 credit hours below 700 level		
At most 6 credit hours of non-EE or non-CS prefixed courses		
At least 12 credit hours of 800 level or above courses with EE or CS prefixes		
At least 3 credit hours of applied learning component courses		
Total Credit Hours		30

**Applied Learning**

Students in the MS in computer science program (including students in the *coursework option*) are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing at least 3 credit hours of major courses with a research writing and presentation component that is applied to the plan of study with a *C* or better grade. Currently approved courses are:

- EE 610 Introduction to Quantum Computing (3)
- CS 697AB Machine Learning (3)
- CS 715 Compiler Construction (3)
- CS 794 Multicore Architectures and Programming (3)
- CS 834 Advanced Routing and Switching (3)
- CS 835 Ad Hoc and Sensor Networks (3)
- EE 877AA Information Theoretic Security (3)
- CS 891 Project (3)
- CS 892 Thesis (6)
- CS 898 Accessible Computing (3)
- CS 898AB Privacy Enhancing Technologies (3)
- CS 898AE Software Analysis Methodologies (3)
- CS 898AI Alternative Computing Paradigm (3)
- CS 898AJ Algorithmic Techniques for Big Data Analysis (3)
- CS 898AK Software Analytics (3)
- CS 898AM Cyberphysical System Security (3)
- CS 898AN Advanced Topics in Cybersecurity (3)
- CS 898AU Assistive Mobile Computing (3)
- CS 898AW Artificial Intelligence for Robotics (3)
- CS 898AY Sequential Decision Problems (3)

**MS in Computing****Admission**

The program admits students with a four-year bachelor's degree earned in a STEM (science, technology, engineering and mathematics) field. Students who have taken courses in programming, object oriented programming, data structures and algorithms during their bachelor's degree will be admitted unconditionally (e.g., students with a computer science background). Students who do not have these classes will need to take two prerequisite courses: CS 581 and CS 582 prior to entry into the degree program. Applicants needing prerequisite coursework must take it through Wichita State University. Those needing to take prerequisite courses may be admitted simultaneously to nondegree Category A status and this degree program (conditionally). Upon successful completion (*C* or better) of this coursework, the student will be considered full standing in the degree program. If the prerequisite coursework is not successful, the degree-seeking admission may be deferred until courses are successfully completed (up to one year).

To be considered for admission to the program, a student must have earned a GPA of at least 3.000 (or equivalent GPA) in an earned bachelor's degree from a regionally accredited university, or international equivalent. Students whose bachelor's degree is from an institution outside the U.S. are also required to submit official scores of the GRE General Test.

The MS in computing enables students to obtain a master's degree in the computing field. This degree also utilizes stackable graduate certificates that the department offers. This means that students can earn graduate certificates in areas such as cybersecurity, data science, computer networking and software engineering that can be used to earn this master's degree. A typical student can easily stack two certificates and with a little extra work, even three certificates. More details and

examples are available at the department website. This is a coursework-only degree, i.e., does not require a project or thesis.

**Program Requirements**

Course	Title	Hours
<b>Common Core Requirements</b>		
Students must take three of the four classes listed below		9
CS 665	Introduction to Database Systems	
CS 771	Artificial Intelligence	
CS 664	Computer Networks	
CS 580	Introduction to Software Engineering	
<b>Concentration Electives</b>		
Select up to 15 credit hours of 600-level or higher CS/EE courses. Students are encouraged to see what courses would apply to the department's graduate certificates and take those courses. If a student decides to take all four common core courses, the fourth one can apply in this category.		15
CS 731	Mathematical Foundations for Computer Networking	
CS 737	Wireless Networking	
CS 764	Routing and Switching I	
CS 767	Foundations of Network Security	
EE 864	Multi-Service Over IP	
CS 697AB	Machine Learning	
CS 746	Perspectives on Data Science	
CS 898AS	Deep Learning: Theory, Algorithms and Applications	
CS 898BA	Image Analysis and Computer Vision	
CS 898BD	Deep Learning	
CS 898AW	Artificial Intelligence for Robotics	
CS 780	Advanced Software Engineering	
CS 898AE	Software Analysis Methodologies	
CS 898AK	Software Analytics	
CS 656	Introduction to Cybersecurity	
<b>Technical Electives</b>		
Select up to 6 credit hours of 600-level or higher CS/EE courses. Students are encouraged to see what courses would apply to the department's graduate certificates and take those courses. If a student decides to take all four common core courses, the fourth one can apply in this category. Students can also take related courses from outside the department with prior authorization from the department.		6
Total Credit Hours		30

**Applied Learning**

Students in the MS in computing program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by:

Completing at least 3 credit hours of major courses with a research writing and presentation component that is applied to the plan of study with a *C* or better grade. Currently approved courses are:

- CS 697AM High Performance Computer Systems (3)
- EE 826 Digital Communication Systems II (3)
- CS 834 Advanced Routing and Switching (3)
- CS 835 Ad Hoc and Sensor Networks (3)
- EE 877AA Information Theoretic Security (3)
- EE 877B Smart Grids Applications (3)

- EE 836 5G Wireless Communications (3)
- EE 886 Error Control Coding (3)
- CS 891 Project (3)
- CS 892 Thesis (6)
- CS 898AB Privacy Enhancing Technologies (3)
- CS 898AJ Algorithmic Techniques for Big Data Analysis (3)
- CS 898AM Cyberphysical System Security (3)
- CS 898AN Advanced Topics in Cybersecurity (3)
- CS 898AY Sequential Decision Problems (3)
- EE 986 Wireless Spread-Spectrum Communication (3)

## MS in Data Science

### Admission

Students may be admitted in full graduate standing to the MS in data science program if they have a bachelor's degree in computer science or any related engineering discipline (please see required topics below), a GPA of at least 3.000, and also meet the Graduate School's other requirements. Students who have a bachelor's degree in other quantitative disciplines (mathematics, physics or other disciplines) with demonstrated quantitative skills (calculus, linear algebra, etc.) and proficiency in computer programming may be admitted on a conditional basis.

Application materials will be reviewed by the Graduate School and the MS in data science graduate coordinator, after which the student will be notified of their decision. Students entering the MS in data science program are expected to have already completed courses in programming, linear algebra, statistics and data structures. If prior coursework deficiencies exist, then the student may be admitted on a conditional basis. It is recommended that deficiencies are completed prior to beginning graduate studies.

### Program Requirements

Course	Title	Hours
<b>Core Courses</b>		
CS 746	Perspectives on Data Science	3
BSAN 775	Perspectives on Business Analytics	3
MATH 746	Introduction to Data Analytics	3
CS 697AB	Machine Learning	3
CS 896	Capstone Project in Data Science	3
<b>Data Science Elective Courses</b>		
<i>Select 9 credit hours from the list of classes below.</i>		
CS 665	Introduction to Database Systems	3
CS 771	Artificial Intelligence	3
CS 797I	Introduction to Bioinformatics	3
CS 898AS	Deep Learning: Theory, Algorithms and Applications	3
CS 898AJ	Algorithmic Techniques for Big Data Analysis	3
CS 898BE	Advanced Topics in Machine Learning	3
CS 898CA	Introduction to Intelligent Robotics	3
CS 898BA	Image Analysis and Computer Vision	3
CS 898AW	Artificial Intelligence for Robotics	3
CS 898D	Data Mining	3

CS 898BD Deep Learning

### Discipline Elective Courses

Select 6 credit hours from the list of classes below.

6

Any of the courses listed in Data Science Electives.

MIS 750	Business Intelligence and Analytics
STAT 763	Applied Regression Analysis
STAT 764	Analysis of Variance
STAT 776	Applied Statistical Methods II
IME 780AP	Neural Networks and Machine Learning
IME 869	Bayesian Statistics and Uncertainty Quantification
SMGT 800	Analytics and Decision Making In Sport
IME 780AN	Big Data Analytics in Engineering <sup>1</sup>
IME 734	Introduction to Data Mining and Analytics <sup>2</sup>
MIS 884	Database Planning & Management
BSAN 875	Advanced Business Analytics

Total Credit Hours

30

<sup>1</sup> If CS 898AJ not taken.

<sup>2</sup> If CS 898D not taken.

### Applied Learning

Students in the MS in data science program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing the mandatory course CS 896 Capstone Project in Data Science.

## Dual/Accelerated BS to MS in Computer Science

The dual/accelerated bachelor's to master's degree offers outstanding students the opportunity to pursue both the bachelor's and master's degree in unison and in an accelerated time frame.

### Admission

This program is available to current BS in computer science students at Wichita State University. Students applying for the dual/accelerated BS to MS in computer science (MS in CS) should meet the following requirement:

- Student must have successfully completed at least 90 credit hours with a cumulative GPA of 3.250 or higher in the bachelor's degree.

For complete requirements, including the eligible undergraduate programs and majors, please consult the Graduate Catalog and the home department's website.

### Accelerated Nature

This program was created to help Wichita State University BS in computer science students to get an early start in graduate education, where during their senior year they can be admitted into this program and select up to 9 credit hours of courses to apply to both their degrees (BS in CS and MS in CS).

- Only EE and CS prefixed courses at the 700-level and above can be used for dual credit hours.

- Up to 9 credit hours can be used for the combined undergraduate and graduate program.
- Until the bachelor's degree is awarded, a Dual/Accelerated Enrollment Form must be completed for each semester in which the student takes qualifying courses at the graduate level.

Upon graduation from the BS in CS program, students will be moved to the regular MS in CS program (with the above potential credits applied).

### Program Requirements

Program requirements are the same as they are for the Master of Science in computer science program.

## Dual/Accelerated BS to MS in Computing

The dual/accelerated bachelor's to master's degree offers outstanding students the opportunity to pursue both the bachelor's and master's degree in unison and in an accelerated time frame.

### Admission

To be considered for admission to the program, a student must have successfully completed at least 90 credit hours with a GPA of at least 3.250 in the bachelor's degree. This program will only admit current Wichita State University undergraduate students with sufficient preparation to succeed in the program.

For complete requirements, including the eligible undergraduate programs and majors, please consult the Graduate Catalog and the department's website.

### Program Requirements

The MS in computing enables students to obtain a master's degree in the computing field. This degree also utilizes stackable graduate certificates that the department offers. This means that students can earn graduate certificates in areas such as cybersecurity, data science, computer networking and software engineering that can be used to earn this master's degree. A typical student can easily stack two certificates and with a little extra work, even three certificates. More details and examples are available at the department website. This is a coursework-only degree, i.e., it cannot be completed with a project or thesis.

- Only MS in computing major courses at the 700-level and above can be used for dual credit hours. Up to 9 credit hours can be used for the combined undergraduate and graduate program.
- Until the bachelor's degree is awarded, a Dual/Accelerated Enrollment Form must be completed for each semester in which the student takes qualifying courses at the graduate level.

For complete degree requirements, including lists of major courses and graduating options, please consult the Master of Science in computing program in the Graduate Catalog and visit the department's website.

## Certificate in Computational Data Science

### Admission

Students seeking this certificate must be admitted to the Graduate School in one of the degree programs offered by the School of Computing or in nondegree Category A status.

Students admitted to the program typically have a BS degree in computer science, computer engineering, electrical engineering or other related fields. These degrees typically offer the prerequisite material: CS 400 Data Structures, IME 254 Engineering Probability

and Statistics I, and CS 560 Design and Analysis of Algorithms. The program is also available to students with other degrees that have experience in computer fields and these prerequisite courses.

All Graduate School policies relative to admissions apply.

### Program Requirements

Students pursuing a graduate certificate must file a plan of study for the certificate program with the graduate coordinator before half of the required credit hours are completed. Students may apply certificate coursework toward a degree program.

The certificate requires the completion of 12 credit hours from a selected list of courses.

A cumulative graduate grade point average of at least 3.000 must be maintained for all courses comprising the certificate program and no grades below C. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

The earned certificate cannot be used towards a master's degree 10 years after the completion of the certificate.

Course	Title	Hours
<b>Required Courses</b>		
CS 746	Perspectives on Data Science	3
CS 697AB	Machine Learning	3
<b>Electives</b>		
Select 6 credit hours from the following		6
CS 665	Introduction to Database Systems	
CS 771	Artificial Intelligence	
CS 898AS	Deep Learning: Theory, Algorithms and Applications	
CS 898BA	Image Analysis and Computer Vision	
CS 898D	Data Mining	
CS 898AW	Artificial Intelligence for Robotics	
Total Credit Hours		12

Courses must be taken at the graduate level. (Students who have taken any of the above courses at the undergraduate level cannot use those credits towards this graduate certificate.) Thus, if a student has taken any of the required classes as an undergraduate class, then the student will have to take additional courses from among the technical electives so that they have 12 credit hours total of the above courses at the graduate level. Alternatively, Wichita State undergraduate students who have a future intention of pursuing this graduate certificate should look into the accelerated MS programs and/or the "Senior Rule" so that they can take the above courses at the graduate level.

## Certificate in Computer Networking

### Admission

Students seeking this certificate must be admitted to the Graduate School in one of the degree programs offered by the School of Computing or in nondegree Category A status.

Students admitted to the program typically have a BS degree in a computer science, computer engineering, electrical engineering or other related fields. These degrees typically offer the prerequisite material: CS 400 Data Structures, IME 254 Engineering Probability and Statistics I, and CS 560 Design and Analysis of Algorithms. The

program is also available to students with other degrees that have experience in computer fields and these prerequisite courses.

All Graduate School policies relative to admissions apply.

### Program Requirements

Students pursuing a graduate certificate must file a plan of study for the certificate program with the graduate coordinator before half of the required credit hours are completed. Students may apply certificate coursework toward a degree program.

The certificate requires the completion of 12 credit hours from a selected list of courses.

A cumulative graduate grade point average of at least 3.000 must be maintained for all courses comprising the certificate program and no grades below C.

The earned certificate cannot be used towards a master's degree 10 years after the completion of the certificate. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

Course	Title	Hours
<b>Required Courses</b>		
CS 664	Computer Networks	3
CS 731	Mathematical Foundations for Computer Networking	3
CS 737	Wireless Networking	3
<b>Electives</b>		
Select one course from the following		3
CS 764	Routing and Switching I <sup>1</sup>	
CS 767	Foundations of Network Security	
EE 864	Multi-Service Over IP <sup>1</sup>	
Total Credit Hours		12

<sup>1</sup>This is a 4 credit hour course, the total credit hours will be increased by one.

Courses must be taken at the graduate level. (Students who have taken any of the above courses at the undergraduate level cannot use those credits towards this graduate certificate.) Thus, if a student has taken any of the required classes as an undergraduate class, then the student will have to take additional courses from among the technical electives so that they have 12 credit hours total of the above courses at the graduate level. Alternatively, Wichita State undergraduate students who have a future intention of pursuing this graduate certificate should look into the accelerated MS programs and/or the "Senior Rule" so that they can take the above courses at the graduate level.

## Certificate in Information Assurance and Cybersecurity

The graduate certificate in information assurance and cybersecurity is a university-issued graduate certificate. It is designed for information technology professionals and graduate students enrolled in related fields who are wishing to gain training in this focused topic. Students completing this certificate will have a strong understanding of the fundamentals of information assurance and cybersecurity as well as an in-depth knowledge in critical and upcoming areas such as security and privacy in network and internet systems, cyber-physical systems and critical infrastructure, Internet-of-Things and software systems and cloud computing.

### Admission

Students seeking this certificate must be admitted to the Graduate School in one of the degree programs offered by the School of Computing or in nondegree Category A status.

Students who do not have a minimum of a bachelor's degree in computer science, or a strong background in computer science, may be required to take additional coursework in preparation for enrollment in the certificate program.

All Graduate School policies relative to admissions apply.

### Program Requirements

Students pursuing a graduate certificate must file a plan of study for the certificate program with the graduate coordinator before half of the required credit hours are completed. Students may apply certificate coursework toward a degree program.

The certificate requires the completion of 12 credit hours from a selected list of courses.

A cumulative graduate grade point average of at least 3.000 must be maintained for all courses comprising the certificate program and no grades below C. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

Course	Title	Hours
<b>Required Courses</b>		
CS 664	Computer Networks	3
CS 656	Introduction to Cybersecurity	3
CS 767	Foundations of Network Security	3

With the help of these required courses, students will develop a strong and sound foundation of current data and network systems, security and privacy challenges in these systems, and fundamental cryptographic and cybersecurity techniques to overcome these challenges.

### Elective

Select one of the elective courses listed on the School of Computing website. Electives allow students to explore information assurance and security challenges in upcoming and modern networking, hardware and software systems.

Total Credit Hours 12

Students completing the certificate program receive an appropriately worded certificate from the Graduate School, and notation will be made on the student's transcript when the certificate has been awarded.

## Certificate in Software Engineering

### Admission

Students seeking this certificate must be admitted to the Graduate School in one of the degree programs offered by the School of Computing or in nondegree Category A status.

Students admitted to the program typically have a BS degree in computer science, computer engineering, electrical engineering or other related fields. These degrees typically offer the prerequisite material, CS 400 Data Structures, IME 254 Engineering Probability and Statistics I, and CS 560 Design and Analysis of Algorithms. The program is also available to students with other degrees that have experience in computer fields and these prerequisite courses.

All Graduate School policies relative to admissions apply.

## Program Requirements

Students pursuing a graduate certificate must file a plan of study for the certificate program with the graduate coordinator before half of the required credit hours are completed. Students may apply certificate coursework toward a degree program.

The certificate requires the completion of 12 credit hours from a selected list of courses.

A cumulative graduate grade point average of at least 3.000 must be maintained for all courses comprising the certificate program and no grades below C.

The earned certificate cannot be used towards a master's degree 10 years after the completion of the certificate. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

Course	Title	Hours
<b>Required Courses</b>		
CS 580	Introduction to Software Engineering	3
CS 780	Advanced Software Engineering	3
<b>Electives</b>		
Select 6 credit hours from the following		6
CS 665	Introduction to Database Systems	
CS 771	Artificial Intelligence	
CS 898AS	Deep Learning: Theory, Algorithms and Applications	
CS 898BA	Image Analysis and Computer Vision	
CS 898D	Data Mining	
Total Credit Hours		12

Courses must be taken at the graduate level. (Students who have taken any of the above courses at the undergraduate level cannot use those credits towards this graduate certificate.) Thus, if a student has taken any of the required classes as an undergraduate class, then the student will have to take additional courses from among the technical electives so that they have 12 credit hours total of the above courses at the graduate level. Alternatively, Wichita State undergraduate students who have a future intention of pursuing this graduate certificate should look into the accelerated MS programs and/or the "Senior Rule" so that they can take the above courses at the graduate level.

## Electrical and Computer Engineering

The department of electrical and computer engineering (ECE) offers graduate courses of study leading to one or more of the following degrees:

- PhD in electrical engineering and computer science
- Master of Science (MS) in electrical and computer engineering

### Master of Science Degree

#### *Master of Science in Electrical and Computer Engineering*

The Master of Science in electrical and computer engineering (MSECE) is a flexible degree program for students seeking an advanced professional career in electrical or computer engineering, or gaining admission into PhD programs around the world. Students of the program have the opportunity to build a strong foundation in physical science and mathematics, while exploring key subdisciplines taught by active researchers having national and international recognition in communication and signal processing, computing systems, control

systems and robotics, power and energy systems, and computer networking.

### Doctor of Philosophy

The Doctor of Philosophy (PhD) in electrical engineering and computer science prepares students for conducting advanced research in several specialization areas including algorithms and software systems, cyber-physical systems, cybersecurity, parallel and pervasive computing, artificial intelligence and machine learning, data science and big data analysis, communication and signal processing, computer networking, computer systems and architecture, control systems, and energy and power systems. Students of this program take courses that span the breadth of this field, as well as depth in their chosen specialization areas. Students have the option to focus on computer science, computer engineering or electrical engineering. Under the supervision of recognized researchers, students conduct research leading to archival publications, and prepare themselves for a research-oriented career.

### Facilities

Modern laboratories contain facilities for experimental work in areas of control systems and robotics, computers and digital systems, communications, energy conversion, power electronics, power quality, and computer networking.

### Programs in Electrical and Computer Engineering

- PhD in Electrical Engineering and Computer Science (p. 142)
- MS in Electrical and Computer Engineering (p. 143)
- Dual/Accelerated BS to MS in Electrical and Computer Engineering (p. 144)

### Courses in Electrical and Computer Engineering

- Electrical Engineering (EE) (p. 325)<sup>1</sup>

<sup>1</sup> EE subject courses in the process of changing to subject code ECE (Electrical and Computer Engineering) at the time of catalog publication. Check with department for list of available courses.

## PhD in Electrical Engineering and Computer Science

The PhD in electrical engineering and computer science is collaboratively offered by the School of Computing and department of electrical and computer engineering.

### Admission

Admission into the PhD EECS program requires the following:

1. A completed bachelor's or master's degree, with a grade point average of at least 3.250 in electrical engineering, computer science or a related field.
2. Official GRE General (Aptitude) test scores.
3. Evidence of ability to carry out independent research and present it in written English is highly desirable.
4. Two letters of recommendation and a statement of purpose are encouraged.

Each applicant is evaluated individually.

In addition, applicants with a bachelor's degree will only be admitted if an ECE faculty member judges them as exceptional, and is willing to be their PhD advisor from the beginning of the program.

### Program Requirements

In addition to the College of Engineering's PhD requirements (p. 129), the electrical and computer engineering department requires the following:

#### Advisor

The student should secure an advisor to supervise their PhD dissertation as early as possible, but no later than the completion of their first academic year in the program.

#### Degree Requirements

A PhD plan of study should contain a minimum of 72 total credit hours, beyond undergraduate credits, with the following requirements:

- A minimum of 24 credit hours of EE 976 PhD Dissertation.
- A minimum of 36 credit hours of coursework, including a maximum of 24 credit hours that can transfer from a master's degree. All these credit hours should be relevant to ECE (i.e., offered by graduate programs in computer engineering, computer science and/or electrical engineering).
- Twelve (12) credit hours of additional coursework, EE 976, or combination of both.

Please refer to the respective section of the College of Engineering and Graduate School for their degree requirements.

#### Qualifying Exam (QE)

The PhD advisory committee, on the request of the advisor, shall conduct the Qualifying Exam (QE) to evaluate the student's research readiness to eventually complete the dissertation requirements. That is, (s)he has the needed background and satisfactory performance in the relevant coursework, demonstrated a preliminary understanding of the research literature relevant to their projected dissertation, and has a future-research plan including the graduation timeframe. The committee must inform the student about the structure of the qualifying exam in advance, e.g., allocated time to present their case for research readiness and Q&A from the committee, and open/closed to public. If the full committee is unavailable, at least three committee members are sufficient to administer the qualifying exam.

The student is graded pass or fail on the qualifying exam based on a simple majority vote of the committee. The committee may require revisions to the plan of study, remedial actions and/or supplementary assignments regardless of the outcome. If the student fails the qualifying exam, another attempt can be requested. No more than two attempts are permitted. The advisor should report the outcome to the department within three business days of the qualifying exam's conclusion. The student should complete the qualifying exam no later than completion of the initial two academic years in the program.

The student cannot schedule the qualifying exam without an approved plan of study on file, and also cannot attempt the Dissertation Approval Examination (DAE) without successfully completing the qualifying exam. The advisor, in consultation with the committee, may require the student to retake the qualifying exam should there be significant changes from the last successful attempt (e.g., original advisor or committee or dissertation-direction changes).

#### Applied Learning

Students in the PhD in electrical engineering and computer science program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing and defending a dissertation based on new and novel research (including a minimum of 24 credit hours of EE 976 PhD Dissertation).

## MS in Electrical and Computer Engineering

The Master of Science in electrical and computer engineering is designed to provide in-depth specialization in a particular area in electrical or computer engineering. Areas of specialization offered by the program are communication and signal processing, computing systems, control systems and robotics, and power and energy systems. Students choose their area of specialization in consultation with their advisor.

#### Admission

The program admits students with a bachelor's degree in electrical engineering, computer engineering or a related area. Students from other engineering fields, mathematics or science can be admitted as well with an extra requirement to complete undergraduate level background deficiency courses determined at the time of admission. Such courses will not count towards the MS degree completion requirements.

To be considered for admission to the program the minimum requirements are:

- Student must have earned a GPA of at least 3.000 (or an equivalent score from another country) in the bachelor's degree.
- Students whose bachelor's degree is from an institution outside the U.S. are required to submit official scores of the GRE General Test along with the admission application. However, there is no minimum score requirement.
- Applicants whose native language is not English must provide English proficiency exam scores. One of the following is required: TOEFL score at or above 79 in internet-based exam or IELTS score at or above 6.5.

The following are optional but encouraged, especially if the student's GPA and/or GRE do not truly reflect the student's skills and/or abilities:

- Statement of purpose, and/or
- Two letters of recommendation.

#### Program Requirements

Each MS in electrical and computer engineering student chooses a major specialization area. Major areas in the department are communication and signal processing, computer engineering, control systems and robotics, and power and energy systems.

Students must choose one of the three graduating options: thesis, project or coursework#only. A total of 30 credit hours of graduate work is required for all options. All courses must be approved by the student's advisor and the graduate coordinator. Students are advised to consult their advisor (if thesis or project option) or graduate coordinator (if coursework only option) before taking any courses, especially if they are below 600 level or offered outside the home department (i.e., for courses that are not EE or CS prefixed).

Students are strongly advised to choose their area of specialization in consultation with their advisor and/or graduate coordinator before completing their first semester. To ensure that students take relevant courses, students should seek approval from their advisor or graduate coordinator at each semester unless they have filed a plan of study. Courses that are taken without prior approval may affect the plan of study process, if deemed not to satisfy the graduation requirements.

**Graduating Options****Thesis Option**

Students need to complete an in-depth research project. Students should conduct extensive literature review, identify gaps, propose a research question, and seek a solution to the research question. This is ideal for students who desire to develop their research skills or plan to pursue a research career. Students will defend their findings to their thesis committee. One out of the three committee members must be outside the home department. Students are encouraged to take 6 credit hours of individual reading courses with their advisors leading to taking thesis credits.

Course	Title	Hours
EE 792	Linear Systems	3
EE 876	Master's Thesis	6
Select one of the following courses:		3
EE 754	Probabilistic Methods in Systems	
EE 777M	Optimization Techniques for Cyber-Physical Systems	
Select 18 credit hours of graduate courses		18
Selection has to be made in consultation and with the consent of the thesis advisor		
At most 6 credit hours of CS 893 Individual Reading or Project		
Total Credit Hours		30

**Project Option**

Students solve a specific problem or an issue of significance. Typically, students will find and implement a solution to the problem identified. The problem and its solution might be less original compared to the thesis option. Students will identify a problem, define a solution approach, implement it, collect necessary data and analyze. Students will submit a written project report to a committee of three faculty members (with graduate status) and present their findings. Students are encouraged to take 3 credit hours of individual reading courses with their advisors leading to taking project credits.

Course	Title	Hours
EE 792	Linear Systems	3
CS 891	Project	3
Select one of the following courses:		3
EE 754	Probabilistic Methods in Systems	
EE 777M	Optimization Techniques for Cyber-Physical Systems	
Select 21 credit hours of graduate courses		21
Selection has to be made in consultation and with the consent of the project advisor		
At most 3 credit hours of CS 893 Individual Reading or Project		
At most 6 credit hours below the 700 level		
Total Credit Hours		30

**Coursework Option**

Course	Title	Hours
EE 792	Linear Systems	3
Select one of the following courses:		3
EE 754	Probabilistic Methods in Systems	
EE 777M	Optimization Techniques for Cyber-Physical Systems	
One of the following applied learning component courses <sup>1</sup>		3
CS 898AI	Alternative Computing Paradigm	
EE 826	Digital Communication Systems II	

EE 893	Optimal Control	
EE 897	Operation and Control of Power Systems	
Select 21 credit hours of graduate courses		21
Selection must be approved by the graduate coordinator of the program		
No credit hours of CS 893 Individual Reading or Project will apply		
At most 6 credit hours below the 700 level		
At least 6 credit hours must be at the 800 level or higher <sup>1</sup>		
Total Credit Hours		30

<sup>1</sup> At least 9 credit hours of 800 or higher level courses must be taken, 3 of which comes from the applied learning component.

**Applied Learning**

Students in the MS in electrical and computer engineering program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met for the thesis and project options by completing the thesis or project. For the coursework option, applied learning is satisfied by one of the applied learning courses as identified among the requirements in the table (CS 898AI, EE 826, EE 893 or EE 897).

## Dual/Accelerated BS to MS in Electrical and Computer Engineering

The dual/accelerated BS to MS in electrical and computer engineering (MSECE) offers outstanding undergraduate students in electrical engineering or computer engineering the opportunity to pursue both the bachelor's and master's in unison and in an accelerated time frame.

**Admission**

This program is available to current BS in electrical engineering or BS in computer engineering students at Wichita State University. Students applying for dual/accelerated BS to MS in electrical and computer engineering (MSECE) should meet the following requirement:

- Student must have successfully completed at least 90 credit hours with a cumulative GPA of 3.000 or higher in the bachelor's degree.

For complete requirements, including the eligible undergraduate programs and majors, please consult the Graduate Catalog and the home department's website.

**Accelerated Nature**

This program was created to help Wichita State University BS in electrical engineering and BS in computer engineering students to get an early start in graduate education, where during their senior year they can be admitted into this program and select up to 9 credit hours of courses to apply to both their degrees (BS and MSECE).

- Only EE and CS prefixed courses at the 700-level and above can be used for dual credit hours.
- Up to 9 credit hours can be used for the combined undergraduate and graduate program.
- Until the bachelor's degree is awarded, a Dual/Accelerated Enrollment Form must be completed for each semester in which the student takes qualifying courses at the graduate level.

Upon graduation from the BS program, students will be moved to the regular MSECE program (with the above potential credits applied).

**Program Requirements**

Program requirements are the same as they are for the Master of Science in electrical and computer engineering program.

For complete requirements, including the eligible undergraduate programs and majors, please consult the graduate catalog and/or ECE department's website.

## Industrial, Systems, and Manufacturing Engineering

The department of industrial, systems and manufacturing engineering (ISME) at WSU is committed to instruction and research in design, analysis and operation of manufacturing and other integrated systems of people, material, equipment and capital. The ISME department prepares students to be life-long learners and global citizens with successful careers in design, research, improvement and management of systems in manufacturing and service organizations. The graduate programs are directed toward both full-time and part-time students with a special emphasis on providing training and experience in performing independent research on topics with theoretical as well as applied interest. Students are encouraged to conduct research or take courses on topics that overlap several disciplines.

The ISME department offers three graduate degree programs and five certificate programs. The ISME department offers Master of Engineering Management (MEM), Master of Science and Doctor of Philosophy degree programs in industrial engineering (MSIE and PhDIE, respectively). The concentrations in the ISME graduate programs are data analytics, operations research and systems engineering, production and supply chain analytics, quality and reliability, manufacturing engineering and automation, and human systems engineering.

The ISME department has certificate programs in additive manufacturing, foundations of six sigma and quality improvement, lean systems, systems engineering and management, and supply chain management (offered jointly with the W. Frank Barton School of Business).

### Facilities

The following facilities used in teaching and research are available for graduate students:

#### ***Collaborative Robotics Lab***

Focuses on fundamental research and training in the areas of collaborative robotics, automation, smart manufacturing, Industry 4.0, artificial intelligence, machine vision and control systems. The lab capabilities include programming and simulation of industrial robots and PLCs, sensor integration, signal processing and data acquisition. The lab owns state-of-the-art industrial equipment including a UR10e collaborative robot, a SICK Ranger-E 3D vision camera, Siemens S7-1200 PLCs, Siemens IoT 2040 gateway devices, and materials handling end effectors.

#### ***Manufacturing Laboratory***

Supports all courses offered in the areas of manufacturing engineering, tool design, advanced and nontraditional machining, composite machining, and computer-aided manufacturing. The lab is also used by other departments.

#### ***Reliability and Maintenance Engineering Laboratory***

Provides students with hands-on experiences in modeling accelerated life testing and degradation testing, optimal design of testing plans, robust reliability design, system reliability optimization, condition-based maintenance and engineering risk assessment. To carry out these teaching-related activities, the lab hosts accelerated life/degradation testing equipment and several test beds for CBM.

#### ***Human Performance and Design Laboratory***

Supports teaching and research in fields related to industrial ergonomics. CAD/Systems Laboratory teaching lab supports a number of courses including engineering graphics, systems simulation and neural networks. The lab is also used on a regular basis by the ME and other departments to support a number of courses.

#### ***Advanced Manufacturing Process Lab***

Focuses on research in machining, sheet metal forming, and supports manufacturing engineering courses.

#### ***Laboratory for Sustainable Engineered Systems***

Promotes the advancement of knowledge, understanding and education of environmentally sustainable engineered systems in health care and the environment, life cycle analysis, green manufacturing and production systems. The lab conducts research in energy efficiency, health care and the environment, life cycle analysis, green manufacturing and sustainability.

#### ***Health Systems Engineering Laboratory***

Provides resources and expertise for the design, analysis and improvement of health care systems, and supports teaching and research in health care analytics, operations, quality and risk management, and medical decision making.

### Curriculum and Research Concentrations

The teaching and research concentrations in ISME are clustered around the following six areas.

**Operations Research:** modeling and analysis of complex systems in manufacturing and service systems, optimization theory and methods, multi-criteria decision making and stochastic systems.

**Systems:** management of engineering enterprises, design and analysis of complex systems, decision analysis, application of intelligent systems and simulation in manufacturing, activity-based costing and project management.

**Production and Supply Chain Analytics:** design and control of manufacturing systems, facilities planning, supply chain management, scheduling and analytics applications.

**Quality and Reliability:** design of experiments, Total quality management, quality control, prognostics, risk management, data driven analysis and big data.

**Manufacturing Engineering:** manufacturing processes, CAD/CAM/CIM systems, measurement/inspection, GD&T, forming, composites manufacturing, and free form surfaces manufacturing.

**Human Systems Engineering:** emphases include industrial ergonomics, biomechanics, human-machine systems, occupational safety and other industrial hygiene issues, and ergonomics and human factors issues in aviation/space systems.

#### ***Master of Science in Industrial Engineering***

The Master of Science in industrial engineering (MSIE) degree enhances the skills of degreed engineers by providing advanced knowledge and skills that are needed to design, model, analyze and manage modern complex systems in order to increase the effectiveness of manufacturing and service sector organizations. Students have opportunities to enhance their knowledge on technical skills such as optimization, production planning, quality, supply chain management, simulation, analytics, reliability, ergonomics, systems engineering, manufacturing engineering, and also on nontechnical skills required for

success in their careers. Recent graduates have obtained positions in manufacturing, services and consulting companies.

### Master of Engineering Management

The Master in Engineering Management (MEM) program educates engineering, science and business graduates in the skills and knowledge to increase the effectiveness of manufacturing and service sector organizations in planning, decision making and complex problem solving to increase the effectiveness of manufacturing and service sector organizations. Students should consider the MEM program if they find that they need to use (or develop) skills in decision making and management of teams, projects and organizations. The MEM program is structured for practicing technical professionals. Engineering management is for professionals who are interested in becoming managers while remaining engineers.

### Doctor of Philosophy

The PhD in industrial engineering (PhDIE) program trains engineers to perform independent research and educates in advanced knowledge in the concentrations offered by the ISME program. Recent graduates have obtained positions in academic institutions, manufacturing, services and consulting companies.

### Certificate Programs

The ISME department offers graduate certificate programs in additive manufacturing, supply chain management, foundations of six sigma and quality improvement, lean systems, and systems engineering and management. Students seeking any of these certificates must be admitted to the Graduate School:

1. In one of the degree programs offered by the department, or
2. In nondegree, Category A status.

All Graduate School policies relative to admissions apply. International students will not be issued an I-20 for pursuing a certificate program only. They may obtain a certificate only while concurrently pursuing a graduate degree.

Students pursuing a graduate certificate must notify the program coordinator (in a written memo) that they wish to complete the certificate. This notification must occur before half of the required credit hours are completed. Via the submitted plan of study, requests to complete the certificate are reviewed by the program faculty and the dean of the Graduate School.

Students may apply certificate coursework toward a degree program. An overall graduate grade point average of at least 3.000 must be maintained for all courses comprising the certificate program with no grades below C.

### Programs in Industrial, Systems and Manufacturing Engineering

- PhD in Industrial Engineering (p. 146)
- MEM - Master of Engineering Management (p. 147)
- MS in Industrial Engineering (p. 148)
- Dual/Accelerated Bachelor's to Master's in Industrial Engineering (p. 150)
- Dual/Accelerated Bachelor's to Master's in Engineering Management (p. 151)

### Certificates in Industrial, Systems and Manufacturing Engineering

- Certificate in Additive Manufacturing (p. 151)
- Certificate in Foundations of Six Sigma and Quality Improvement (p. 152)

- Certificate in Lean Systems (p. 152)
- Certificate in Supply Chain Management (p. 152)
- Certificate in Systems Engineering and Management (p. 152)

### Courses in Industrial and Manufacturing Engineering

- Industrial and Manufacturing Engineering (IME) (p. 357)

*Note:* For all graduate programs in ISME, some IME courses may require programming skills as a prerequisite, and some IME courses may require Linear Algebra or Calculus III as a prerequisite.

## PhD in Industrial Engineering

### Admission

Following are the minimum requirements for admission to the PhD in industrial engineering program.

1. Applicants whose native language is not English must submit official, acceptable scores for either the TOEFL, the Academic Module of the IELTS examination, or the PTE-Academic test. Please visit the Graduate School website (<http://wichita.edu/gradschool/>)<sup>1</sup>, to check English proficiency requirements;
2. Submission of official GRE scores is required;
3. Applicants must have (or be nearing the completion of) a master's degree in engineering, physical science or other related disciplines with a minimum cumulative GPA of 3.250 (on a 4.000 point scale) in all graduate coursework;
4. A statement of purpose indicating applicant's research interests, and evidence of the ability to carry out independent research and present it in written English is highly desirable;
5. Submission of two letters of recommendation; and
6. Prerequisites:

- a. Completion of the following or equivalent courses:

Course	Title	Hours
IME 255	Engineering Economy	3
MATH 344	Calculus III (students deficient in this are considered for admission only in nondegree status)	3

A natural science course equivalent to that of the undergraduate engineering requirement

- b. Programming competence in at least one of the following languages: C, C++ or Visual BASIC.

### Direct Admission of BS Graduates in Industrial Engineering

The department of industrial, systems and manufacturing engineering (ISME) offers direct admission for *truly exceptional* students to its PhD program. Applicants must have consistent and exceptional credentials throughout all their academic career, including:

- An undergraduate degree in engineering, physical science or other related discipline;
- A minimum GPA of 3.500, on a 4.000 scale, during the final 60 credit hours of coursework; and
- A letter of endorsement for admission from an ISME graduate faculty member. (This requirement reflects the willingness of an ISME graduate faculty member to serve as the research advisor for the applicant upon admission.)

All other minimum requirements for admission into the PhD in industrial engineering program must be met.

<sup>1</sup> Link opens new window.

## Program Requirements

- Course Distribution:** Total credit hours = minimum of 72 credit hours
- Graduate Coursework:** at least 48 credit hours;
  - Including a maximum of 24 credit hours transferred from an MS degree in industrial engineering or closely related field;
  - Excluding dissertation hours;
  - Preapproved by the graduate coordinator or department chair before registration;
  - With at least 50 percent of coursework (beyond credit hours transferred from the MS degree) from the department;
  - Excluding independent study courses.

Course	Title	Hours
<b>Dissertation</b>		
Select at least 24 credit hours in dissertation		24
<b>Required Courses</b>		
IME 724	Statistical Methods for Engineers	3
IME 777	IME Colloquium (three semesters)	0
<b>Technical Electives</b>		
Select as many hours as necessary to satisfy the total credit hour requirements (at least 48 credit hours of graduate coursework).		45
Professional and scholarly integrity training (preferably completed in the first semester)		
Total Credit Hours		72

- Advisor, Advisory Committee and Plan of Study:** Before completing 12 PhD credit hours at WSU, a student must select an advisor and an advisory committee. With the help of the advisor, the student must prepare a plan of study that needs to be approved by the advisory committee, graduate coordinator and Graduate School before the preliminary and comprehensive exam is attempted. For details of the preliminary examination, please refer to the ISME website.
- Preliminary Examination:** Before completing 18 PhD credit hours at WSU, a student must pass the preliminary examination administered by the department in at most two attempts. Students who cannot pass the preliminary exam in 1.5 years will be dismissed from the PhD program.
- Dissertation Approval Examination:** Prepare a dissertation research proposal and pass an oral examination of the proposal. A student cannot attempt the examination more than twice.
- Dissertation Defense:** Must pass an oral examination of the dissertation.
- Other Program Requirements:** All other requirements are the same as those established for the college and the university.
- Time Limits:** From the time the student is admitted to the program, no more than 10 years may elapse until requirements for the degree have been completed.

### On the WayMS to PhD Program

A PhD student may apply for the MS in industrial engineering or Master of Engineering Management while being in the PhD program if the student:

- Files a plan of study, in the semester in which the MS degree is awarded, which satisfies all course option requirements and

deadlines for the MS in industrial engineering or Master of Engineering Management;

- Files an application for degree for the semester the master's will be earned; and
- Completes a preliminary examination (as applicable to the PhD program).

### Applied Learning

Students in the PhD in industrial engineering program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by satisfactory completion of a dissertation.

## MEM - Master of Engineering Management

### Admission

To be admitted to the MEM program, applicants must:

- Possess an undergraduate degree in engineering, science, business or other related discipline;
- Have satisfactorily completed: (MATH 144 or MATH 242) and (IME 255 or FIN 340);
- Have a minimum GPA of 3.000, on a 4.000 scale. (Students with a lower GPA may be considered only for probationary or nondegree admission.);
- Applicants whose native language is not English must submit official, acceptable scores for either the TOEFL, the Academic Module of the IELTS examination, or the PTE-Academic. Please visit the Graduate School website to check English proficiency requirements (<https://www.wichita.edu/GradEnglishProficiency/>)<sup>1</sup>; and
- Department prefers and strongly encourages the submission of GRE scores.

<sup>1</sup> Link opens new window.

### Program Requirements

Please note that:

- Some of the IME courses may require programming skills as a prerequisite.
- Some of the IME courses may require Linear Algebra or Calculus III as a prerequisite.
- Course distribution (at least 33 credit hours with no more than 9 credit hours at 500-600 levels)

Course	Title	Hours
<b>Core Courses</b>		
<i>Departmental Courses (select five courses)</i>		
Select a minimum of 15 credit hours of coursework from the department. (Students are encouraged to complete a graduate certificate offered through the department.)		15
<b>Management</b>		
MBA 802	Fundamentals of Accounting	1.5
MBA 803	Fundamentals of Finance	1.5
MBA 804	Marketing Basics	1.5
MBA 805	Management Basics	1.5
IME 777	IME Colloquium (one semester)	0
<b>Electives</b>		
Select at least 12 credit hours of electives (must be at 600+ level and from engineering, computer science and/or MBA programs) with the written preapproval of the department for non-IME courses		12

**Additional Requirements**

Applied Learning	See applied learning requirements below	
Total Credit Hours		33

- A plan of study should be submitted during the first semester of enrollment and at least 60 percent of credit hours in a plan of study must be 700 or higher level WSU courses;
- The professional and scholarly integrity training requirement must be completed, preferably during the first semester of the program.

**Credit for Prior Learning**

Industry recognized external certifications are valued by our department and may be used to satisfy up to six (6) credit hours of the curriculum requirements. These credits will follow the Credit for Prior Learning (CPL) policy described in the Graduate Catalog. The details of such credits are as follows:

- Pre-approved external certifications (with active certification status):
  - ASQ Certified Quality Engineer (CQE): as IME 960F;
  - ASQ Six Sigma Black Belt (CSSBB) or higher level: as IME 767;
  - ASQ Certified Manager of Quality/Organizational Excellence (CMQ/OE): as IME 854;
  - SME Lean Certification at Silver or Gold level: as IME 767;
  - AEE Certified Energy Auditor (CEA) or Certified Energy Manager (CEM): as IME 780AL;
  - APICS Certified Supply Chain Professional (CSCP): as IME 783;
  - PMI Project Management Professional (PMP): as IME 664; and
  - INCOSE Certified Systems Engineering Professional (CSEP) or Expert Systems Engineering Professional (ESEP): as IME 764.
- If a certification is equivalent to a specific course, the student cannot repeat that course and receive additional course credits towards the degree.
- CPL credits may be earned through certificates awarded until completion of no more than 75 percent of the curriculum. This includes certificates awarded before joining the program.
- CPL credits defined here will only count towards their degree for students within this program.
- CPL credits are included in the total transfer credits allowed toward a degree.

**MBA to MEM Program**

Graduates of the WSU Master of Business Administration (MBA) program may be allowed to use up to 12 credit hours from the WSU MBA courses as technical electives if they enroll in the MEM program.

**MEM to MBA Program**

Graduates of the WSU MEM program may be allowed to use up to 12 credit hours from the technical electives taken from the WSU MBA courses if they enroll in the MBA program.

**Applied Learning**

Students in the Master of Engineering Management program are required to complete an applied learning or research experience to graduate from this program. The requirement can be met by completing one of the following options:

1. IME 872; or
2. At least one of the following courses: IME 734, IME 767, IME 764 or IME 664; or

3. 1 credit hour of cooperative education (or 0 credit hour cooperative education for students working full time).

## MS in Industrial Engineering

**Admission**

In order to be admitted into the MSIE program, applicants must:

1. Possess an undergraduate degree in engineering, science, business or other related discipline;
2. Have satisfactorily completed MATH 243 and IME 255;
3. Have a minimum GPA of 3.000, on a 4.000 scale. (Students with a lower GPA may be considered only for probationary or nondegree admission.) *In addition*,
4. Applicants whose native language is not English must submit official, acceptable scores for either the TOEFL, the Academic Module of the IELTS examination, or the PTE-Academic test. Please visit the Graduate School website to check English proficiency requirements (<https://www.wichita.edu/GradEnglishProficiency/>)<sup>1</sup>; and
5. Department prefers and strongly encourages the submission of GRE scores.

<sup>1</sup> Link opens new window.

**Program Requirements**

Students must select two to three concentrations. The concentrations, with representative coursework, are as follows:

Course	Title	Hours
<b>Data Analytics</b>		
IME 734	Introduction to Data Mining and Analytics	
IME 780AN	Big Data Analytics in Engineering	
IME 780AP	Neural Networks and Machine Learning	
IME 869	Bayesian Statistics and Uncertainty Quantification	
IME 880Y	Forecasting and Analytics	
CS 697AB	Machine Learning	
CS 771	Artificial Intelligence	
CS 898AX	Foundations of Data Science	
<b>Operations Research and Systems Engineering</b>		
IME 550	Operations Research I	
IME 650	Operations Research II	
IME 780AG	Nonlinear Programming	
IME 851	Stochastic Modeling and Analysis	
IME 664	Engineering Management	
IME 764	Systems Engineering and Analysis	
<b>Production and Supply Chain Analytics</b>		
IME 553	Production Systems	
IME 563	Facilities Planning and Design	
IME 783	Supply Chain Management	
IME 767	Lean Manufacturing	
IME 880K	Advanced Facilities and Material Handling	
IME 883	Supply Chain Analytics	
<b>Quality and Reliability</b>		
IME 554	Statistical Quality Control	

IME 754	Reliability and Maintainability Engineering
IME 755	Design of Experiments
IME 854	Quality Engineering
<b>Manufacturing Engineering and Automation</b>	
IME 561	Applied Control Systems
IME 558	Manufacturing Methods and Materials II
IME 676	Aircraft Manufacturing and Assembly
IME 758	Analysis of Manufacturing Processes
IME 761	Robot Programming and Applications
IME 775	Computer Integrated Manufacturing
IME 788	Rapid Prototyping and 3D Printing
<b>Human Systems Engineering</b>	
IME 549	Industrial Ergonomics
IME 749	Ergonomic Assessment Methods
IME 759	Ergonomic Interventions
BME 752	Applied Human Biomechanics
BME 757	Clinical Biomechanics Instrumentation
ME 709	Injury Biomechanics
PHS 808	Principles of Epidemiology
PHS 816	Environmental Health
PSY 920	Psychological Principles of Human Factors

Students should also note that some courses may require programming skills or math courses as a prerequisite (e.g. Linear Algebra or Calculus III).

### Course Distribution

Course	Title	Hours
<b>Core Courses</b>		
IME 724	Statistical Methods for Engineers	3
IME 777	IME Colloquium (one semester)	0
<b>Additional Courses</b>		
Minimum 15 credit hours distributed as follows		15
Courses selected from at least two and at most three concentration areas		
<b>Technical Electives</b> 6		
Technical electives: courses from the concentrations above are preapproved to be used as electives. In addition, industrial engineering (IME 500-999) and other engineering or computer science courses at the 600+ level (with preapproval in writing or on plan of study) can be used as electives.		
Total Credit Hours		24

- Students must select one of the following options for completion of MSIE degree: all coursework, directed project or thesis;
- A plan of study should be submitted during the first semester of enrollment and at least 60 percent of credit hours in a plan of study must be 700 or higher level WSU courses. Students may take at most three 500- or 600-level courses (9 credit hours);
- No more than one independent study course may be used toward the degree hours;

- Co-op/internship credit hours cannot be counted toward degree hours;
- The professional and scholarly integrity training requirement must be completed, preferably during the first semester of the program.

### Options Thesis Option

Course	Title	Hours
Select a minimum of 24 credit hours of coursework		24
Select a minimum of 6 credit hours of thesis		6
Total Credit Hours		30

### Directed Project Option

Course	Title	Hours
Select a minimum of 30 credit hours of coursework		30
Select 3 credit hours of directed project		3
Total Credit Hours		33

### All Coursework Option

Course	Title	Hours
Select a minimum of 33 credit hours of coursework and receive an external certification		33
Total Credit Hours		33

### Details of the 33-credit-hour All Coursework MSIE option with external certification:

Terminal activity for the all coursework option can be satisfied by receiving any of the following external certificates:

- Any of the following ASQ certifications:
  - Certified Quality Engineer (CQE);
  - Reliability Engineer (CRE);
  - Six Sigma Black Belt (CSSBB);
  - Six Sigma Green Belt (CSSGB); or
  - Software Quality Engineer (CSQE).
- Any of the following modules or certifications from APICS:
  - One module from the Certified Production and Inventory Management:
    - Basics of Supply Chain Management;
    - Master Planning of Resources;
    - Detailed Scheduling and Planning;
    - Execution and Control of Operations;
    - Strategic Management of Resources; or
  - Certified Supply Chain Professional.
- Any of the SME certifications:
  - Additive Manufacturing Fundamentals Certification;
  - Certified Manufacturing Engineering (CMfgE) Certification;
  - Lean Certification; or
  - Six Sigma Certification.
- Any of the following certifications from INCOSE - International Council on Systems Engineering:
  - Associate Systems Engineering Professional (ASEP);
  - Certified Systems Engineering Professional (CSEP); or
  - Expert Systems Engineering Professional (ESEP).
- Any of the following certifications from Association of Energy Engineers (AEE):
  - Certified Energy Auditor (CEA);
  - Certified Energy Manager (CEM); or
  - Certified Carbon Reduction Manager (CRM).

- Any of the following certifications from U.S. Green Building Council (USGBC):
  - LEED Green Associate; or
  - LEED AP with specialty.

### **Credit for Prior Learning**

Industry recognized external certifications are valued by our department and may be used to satisfy up to six (6) credit hours of the curriculum requirements. These credits will follow the Credit for Prior Learning (CPL) policy described in the Graduate Catalog (p. 36). The details of such credits are as follows:

- Pre-approved external certifications (with active certification status):
  - ASQ Certified Quality Engineer (CQE): as IME 960F;
  - ASQ Six Sigma Black Belt (CSSBB) or higher level: as IME 767;
  - ASQ Certified Manager of Quality/Organizational Excellence (CMQ/OE): as IME 854;
  - SME Lean Certification at Silver or Gold level: as IME 767;
  - AEE Certified Energy Auditor (CEA) or Certified Energy Manager (CEM): as IME 780AL;
  - APICS Certified Supply Chain Professional (CSCP): as IME 783;
  - PMI Project Management Professional (PMP): as IME 664; and
  - INCOSE Certified Systems Engineering Professional (CSEP) or Expert Systems Engineering Professional (ESEP): as IME 764.
- If a certification is equivalent to a specific course, the student cannot repeat that course and receive additional course credits towards the degree.
- CPL credits may be earned through certificates awarded until completion of no more than 75 percent of the curriculum. This includes certificates awarded before joining the program.
- CPL credits defined here will only count towards their degree for students within this program.
- CPL credits are included in the total transfer credits allowed toward a degree.

### **Applied Learning**

Students in the MS in industrial engineering program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completion of a thesis, project, applied learning course or external certification (evaluated by external experts).

## **Dual/Accelerated Bachelor's to Master's in Industrial Engineering**

The department of industrial, systems and manufacturing engineering offers a dual/accelerated bachelor's to master's degree program to undergraduate students in both the industrial engineering and product design and manufacturing engineering programs, culminating in the Master of Science in engineering.

The accelerated program offers outstanding students the opportunity to pursue both the bachelor's and master's degrees in a parallel and coordinated program. Students in the program are guided by the graduate coordinator and the departmental graduate committee until the BS degree is complete. Once the undergraduate degree is complete, an adviser in the area of the student's interest is identified.

### **Admission**

To be considered for admission to the program, the student must:

- Have a minimum WSU GPA of 3.250, and
- Be within 40 credit hours of completing the requirements for a bachelor's degree.

Undergraduate students apply for bachelor's to master's programs using the regular Graduate School application form and admission process (including paying the Graduate School application fee).

Students should apply for graduate admission at least one semester before the semester in which they plan to obtain credit at both the undergraduate and graduate level. Should the student meet the admission requirements set for the program, tentative admission is granted, pending the award of the bachelor's degree.

Tentative graduate admission does *not* guarantee final admission to the graduate program. Final graduate admission is contingent upon the student meeting all the admission requirements in place for the graduate program at the time the bachelor's degree is awarded. If a tentatively admitted student does not achieve final admission, the graduate work already completed is moved to the undergraduate transcript.

### **Program Guidelines**

- The maximum number of credit hours that can be used for both undergraduate and graduate program credit (joint degree courses) is limited to 9 credit hours.
- Only courses 700 level and above can be used for joint credit. Courses that are prerequisites for the graduate program, core courses in the undergraduate curriculum, workshop or cooperative education courses are also excluded.
- Until the bachelor's degree is awarded, for each semester in which the student takes courses at both the graduate *and* undergraduate level, a Dual/Accelerated Enrollment Form must be completed indicating the courses taken for graduate credit (as well as joint credit).
- The bachelor's degree may be awarded at any time following the completion of the undergraduate degree requirements and completion of the joint degree hours.
- The bachelor's degree must be awarded at least two semesters before the graduate degree is awarded.
- Graduate program coursework must be completed within eight years (from the time the first graduate course counted toward degree requirements is taken) or within six years from the awarding of the bachelor's degree, whichever comes first.
- The supervisory committee should be listed on each dual enrollment form, and a program of study filed as soon as the student has received their bachelor's degree.
- A tentative *outline for degree completion* should be developed by the student and advisor and kept in the student's departmental file. The outline for degree completion projects courses to be taken each semester and the semester in which the bachelor's degree and master's degree would be awarded.
- In addition, annual reviews of student progress are conducted with a written progress report placed in the student's departmental file by the departmental graduate committee.
- Students in a dual/accelerated degree program may *not* hold a graduate assistantship until after the bachelor's degree is awarded, and the student is fully admitted to the graduate program.
- For the purpose of requesting exceptions to program and university regulations, students in a dual/accelerated degree program

are considered undergraduates and thus proceed through the undergraduate processes until the bachelor's degree is awarded.

- Students admitted to the dual/accelerated degree program, who do not complete the program or who request admission to any other WSU program, forfeit the joint hours in the program. The joint hours will be posted only to the undergraduate transcript. If joint hours are already posted to both the graduate and undergraduate transcript, the hours on the graduate transcript will be removed.

## Dual/Accelerated BS to MEM

### Admission

To be considered for admission to the program, the student must:

- Have a minimum WSU GPA of 3.250;
- Be a current undergraduate student in engineering, science, business or related discipline; and
- Successfully completed at least 80 credit hours.

Undergraduate students apply for bachelor's to master's programs using the regular Graduate School application form and admission process (including paying the Graduate School application fee).

Students should apply for graduate admission at least one semester before the semester in which they plan to obtain credit at both the undergraduate and graduate level. Should the student meet the admission requirements set for the program, tentative admission is granted, pending the award of the bachelor's degree.

Tentative graduate admission does *not* guarantee final admission to the graduate program. Final graduate admission is contingent upon the student meeting all the admission requirements in place for the graduate program at the time the bachelor's degree is awarded. If a tentatively admitted student does not achieve final admission, the graduate work already completed is moved to the undergraduate transcript.

### Program Requirements

- The maximum number of credit hours that can be used for both undergraduate and graduate program credit (joint degree courses) is limited to 9 credit hours.
- Only courses 700 level and above can be used for joint credit. Courses that are prerequisites for the graduate program, core courses in the undergraduate curriculum, workshop or cooperative education courses are also excluded.
- Until the bachelor's degree is awarded, for each semester in which the student takes courses at both the graduate *and* undergraduate level, a Dual/Accelerated Enrollment Form must be completed indicating the courses taken for graduate credit (as well as joint credit).
- The bachelor's degree may be awarded at any time following the completion of the undergraduate degree requirements and completion of the joint degree hours.
- The bachelor's degree must be awarded at least two semesters before the graduate degree is awarded.
- The supervisory committee should be listed on each dual enrollment form, and a plan of study filed as soon as the student has received their bachelor's degree.
- A tentative *outline for degree completion* should be developed by the student and advisor and kept in the student's departmental file. The outline for degree completion projects courses to be taken each semester and the semester in which the bachelor's degree and master's degree would be awarded.

- In addition, annual reviews of student progress are conducted with a written progress report placed in the student's departmental file by the departmental graduate committee.
- Students in a dual/accelerated degree program may *not* hold a graduate assistantship until after the bachelor's degree is awarded, and the student is fully admitted to the graduate program.
- For the purpose of requesting exceptions to program and university regulations, students in a dual/accelerated degree program are considered undergraduates and thus proceed through the undergraduate processes until the bachelor's degree is awarded.

## Certificate in Additive Manufacturing

The certificate in additive manufacturing is primarily intended for graduate students interested in enhancing their knowledge and skills in additive manufacturing and 3D printing. The curriculum focuses on key materials, technologies and benefits. It includes topics on design considerations, postprocessing, secondary operations, and important quality and safety factors.

Additional concepts important to product development in aviation and biomedical industries are addressed and exercised as term projects.

The certificate is offered jointly by the ISME and ME departments.

### Program Requirements

In addition to completing IME 222 or its equivalent as a preparatory course, the program requires satisfactory completion of 12 credit hours, three required courses and one of the elective courses listed below.

Course	Title	Hours
<b>Preparatory Course</b>		
IME 222	Engineering Graphics (or its equivalent)	
<b>Required Courses</b>		
IME 788	Rapid Prototyping and 3D Printing	3
ME 665	Selection of Materials for Design and Manufacturing	3
IME 775	Computer Integrated Manufacturing	3
<b>Elective</b>		
Select one of the following approved elective courses		3
ME 870	Advanced Laser Applications in Manufacturing <sup>1</sup>	
ME 870L	Advanced Laser Applications in Manufacturing Lab <sup>1</sup>	
BME 777	Biodegradable Materials	
AE 760AA	Micromechanics and Multi-Scale Modeling	
IME 890	Independent Study in Industrial Engineering <sup>2</sup>	
AE 890	Independent Study <sup>2</sup>	
BME 890	Independent Study <sup>2</sup>	
ME 890	Independent Study in Mechanical Engineering <sup>2</sup>	
Total Credit Hours		12

<sup>1</sup> To be taken together in the same semester.

<sup>2</sup> Independent study on additive manufacturing topics subject to approval by the certificate program coordinator.

In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

## Certificate in Foundations of Six Sigma and Quality Improvement

This certificate program is primarily intended for individuals with industrial affiliation who may be interested in enhancing their skills in quality engineering and six sigma methodology. The program includes most of the Certified Six Sigma Black Belt (CSSBB) requirements outlined by the American Society for Quality (ASQ). Includes detailed coverage of applied statistical and managerial techniques most useful for process improvement, resource management and design optimization.

### Program Requirements

Program prerequisite:

Course	Title	Hours
MATH 243	Calculus II	5

This program requires satisfactory completion of four courses (a total of 12 credit hours) from among the following:

Course	Title	Hours
Select four of the following:		12
IME 554 or IME 960F	Statistical Quality Control Statistical Process Control	
IME 724	Statistical Methods for Engineers	
IME 755	Design of Experiments	
IME 767	Lean Manufacturing	
IME 854	Quality Engineering	
IME 890	Independent Study in Industrial Engineering	
IME 990	Advanced Independent Study (on quality related topics)	

Total Credit Hours 12

In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

## Certificate in Lean Systems

This program provides advanced knowledge and methodology of lean systems design, evaluation and operation for practitioners in industry who are responsible for the development and management of production systems in the workplace. Curriculum focuses on the essential knowledge, analytical techniques, guidelines and contemporary issues in the design, evaluation and management of lean systems in industry.

### Program Prerequisite

Course	Title	Hours
IME 550	Operations Research I	3

### Program Requirements

This program requires satisfactory completion of four courses (i.e., a total of 12 credit hours) from among the following:

Course	Title	Hours
Select four of the following:		12
IME 553	Production Systems	
IME 724	Statistical Methods for Engineers	
IME 755	Design of Experiments	
IME 767	Lean Manufacturing	
IME 783	Supply Chain Management	

IME 890/990

Independent Study in Industrial Engineering (on Lean related topics)

Total Credit Hours 12

In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

## Certificate in Supply Chain Management

### Program Requirements

This certificate is aimed at equipping students with a knowledge of supply chain practices used by companies around the world. The courses are structured to provide extensive conceptual and applied information about supply chain management. The curriculum is jointly offered by the decision sciences faculty in the School of Business and the industrial, systems and manufacturing engineering faculty in the College of Engineering.

This program requires satisfactory completion of four courses from the following list of courses, at least one course from both engineering and business is required. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

Course	Title	Hours
Select four courses from the following (at least one course must be taken in each area)		
<b>Engineering Courses</b>		
IME 553	Production Systems	3
IME 767	Lean Manufacturing	3
IME 783	Supply Chain Management	3
IME 880Y	Forecasting and Analytics	3
IME 883	Supply Chain Analytics	3
<b>Business Courses</b>		
DS 725	Global Procurement and Outsourcing	3
DS 790	Global Logistics and Transportation Management	3
DS 850	Operations Management	3
DS 870	Risk Management in Global Supply Chains	3

## Certificate in Systems Engineering and Management

Students completing this program will be able to apply systems concepts and techniques to the understanding, description, design and management of large-scale systems requiring the integration of information and human activity.

The curriculum focuses on the essential knowledge, analytical techniques, and contemporary issues in complex systems definition, design and decision making.

### Program Prerequisites

Course	Title	Hours
MATH 243	Calculus II	5

### Program Requirements

This program requires satisfactory completion of four courses (i.e., a total of 12 credit hours) from among the following:

Course	Title	Hours
Select four of the following:		12
IME 664	Engineering Management	
IME 724	Statistical Methods for Engineers	
IME 740	Analysis of Decision Processes	
IME 764	Systems Engineering and Analysis	
IME 767	Lean Manufacturing	
IME 865	Modeling and Analysis of Discrete Systems	
Total Credit Hours		12

In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

## Mechanical Engineering

The department of mechanical engineering offers courses of study leading to the Master of Science (MS) and Doctor of Philosophy (PhD) degrees. Departmental faculty have developed research activities in the following areas of specialization:

- Materials science and engineering (including composites, nano- and biocomposites, nanotechnology);
- Energy and thermal-fluid sciences (including alternative fuels and fuel safety, non-Newtonian and viscoelastic materials, biofluids and bioheat transfer, computational fluid dynamics, heat transfer) and renewable energy;
- Mechanical systems analysis and design (including vehicle crashworthiness and impact dynamics, mechanical design); and
- Robotics and control (including biosensors and biomedical devices, nonlinear control).

State of the art research laboratories within the department complement the above activities. In addition, faculty members are associates of Wichita State's National Institute for Aviation Research (NIAR). This association makes NIAR facilities available for the research activities of these faculty and their graduate students.

Research facilities include the computational fluid dynamics laboratory (CFD lab) with a linux-based network, the crash dynamics laboratory, the shock and vibration laboratory, the computer integrated manufacturing laboratory, and the mechatronics laboratory.

Departmental facilities in the Engineering Research building:

- Nanotechnology Laboratory
- Nanocomposites and Biocomposites Laboratory
- Biodynamics Laboratory
- BioDevice Laboratory
- Acoustic Measurements and Material Characterization Laboratory
- Thermal Spray Coating Systems Laboratory
- Advanced Joining Processes and Assembly Lab
- Controls Laboratory
- Fuel and Fire Safety

The department's programs and efforts are influenced by the concentration of technology-oriented industries in the Wichita area. Particular attention is given to scheduling coursework so that engineers employed by local industry may pursue a graduate degree in mechanical engineering.

### Programs in Mechanical Engineering

- PhD in Mechanical Engineering (p. 153)
- MS in Mechanical Engineering (p. 155)
- Dual/Accelerated Bachelor's to Master's in Mechanical Engineering (p. 158)

### Certificates in Mechanical Engineering

- Certificate in Additive Manufacturing (p. 158)
- Certificate in Nano Engineering (p. 158)

### Courses in Mechanical Engineering

- Mechanical Engineering (ME) (p. 366)

## PhD in Mechanical Engineering

The PhD degree is usually a four-year program which requires rigorous study and a high degree of emphasis on original research. PhD graduates take up positions in academic institutions, design, services and consulting companies.

### Admission

Following are the minimum requirements for admission to the PhD in mechanical engineering program.

1. Applicants whose native language is not English must submit official, acceptable scores for either the TOEFL, the Academic Module of the IELTS examination, or the PTE-Academic test. Please visit the Graduate School website (<http://wichita.edu/gradschool/>)<sup>1</sup>, to check English proficiency requirements;
2. Submission of official GRE scores is required. GRE must be taken within two years of the application submission;
3. Cumulative GPA in graduate coursework. On a 4.000 scale, must have at least 3.250 in all graduate work;
4. Evidence of the ability to carry out an independent research problem and present it in written English is required;
5. Submission of two letters of recommendation and a statement of purpose indicating applicant's research interests;
6. Prerequisites:
  - a. Completion of the following or equivalent courses:

Course	Title	Hours
ME 662	Senior Capstone Design	3
MATH 555	Differential Equations I	3

A natural science course sequence equivalent to that in a typical ABET undergraduate engineering program.

  - b. Programming competence in at least one of the following languages: C, C++, or MATLAB; and
  - d. Possession of (or nearing the completion of) a master's degree in mechanical or closely related engineering or physical sciences.

### Direct PhD Admission of BS Graduates in Mechanical Engineering

The mechanical engineering department offers direct admission for *truly exceptional* students to its PhD program. Applicants must have consistent and exceptional credentials throughout all their academic career — including:

- A program GPA equivalent of 3.500/4.000 or higher in an undergraduate mechanical or closely related engineering program;
- A minimum combined GRE score of 310 or greater in Verbal and Quantitative skills and a minimum score of 3.5 in Analytical Writing skill are required; and

- Applicants are expected to demonstrate proven undergraduate research experience.

All other application requirements of the PhD program, such as a statement of purpose and two professional reference letters, and undergraduate prerequisites are required.

<sup>1</sup> Link opens new window.

### Program Requirements

1. Course Distribution: Total credit hours = minimum of 72 credit hours.

a. **Graduate Coursework MS – PhD:**

- i. Required Course (four semesters of ME Graduate Seminar).
- ii. Mathematics and computational tool courses (minimum 6 credit hours).
- iii. Minimum of 42 credit hours of technical electives:
  1. Up to 24 credit hours of coursework may transfer from previously earned master’s degree in mechanical engineering or closely related field as approved by the ME graduate coordinator.
  2. Maximum of 6 credit hours in coursework at the 600 level (beyond master’s level coursework).
  3. No coursework at the 500 level.
  4. Excess dissertation hours cannot be applied toward 42 credit hours of elective coursework.

iv. Minimum of 12 credit hours of coursework (excluding dissertation hours) beyond the MS degree, should be at the 800 level or more. No coursework credit will be given to project, thesis/dissertation, and/or independent study.

v. Maximum 24 credit hours of dissertation.

b. **Graduate Coursework BS – PhD:**

- i. Required Course (five semesters of ME Graduate Seminar).
- ii. Mathematics and computational tool courses (minimum 6 credit hours).
- iii. Minimum of 42 credit hours of technical electives:
  1. Up to 12 credit hours of graduate level coursework may transfer in ME or related disciplines as approved by the ME graduate coordinator.
  2. Maximum of 12 credit hours in coursework at the 600 level.
  3. No coursework at the 500 level.
  4. Excess dissertation hours cannot be applied toward 42 credit hours of elective coursework.

iv. Minimum of 15 credit hours of coursework (excluding dissertation hours) must be at the 800 level or above. No coursework credit will be given to project, thesis/dissertation, and/or independent study.

v. Maximum 24 credit hours of dissertation.

2. Course	Title	Hours
<b>Mathematics and Computational Tool Courses <sup>1</sup></b>		
<i>Select at least 6 credit hours from the list below</i>		
ME 730	Modeling of Engineering Systems	6
ME 749	Applications of Finite Element Methods in Mechanical Engineering	
ME 782	Engineering Applications of Computational Fluid Dynamics and Heat Transfer	

AE 722	Finite Element Analysis of Structures I
IME 724	Statistical Methods for Engineers
IME 754	Reliability and Maintainability Engineering
IME 755	Design of Experiments
MATH 700+	Three or more credit hours in mathematics courses at the 700 level or above
STAT 700+	Three or more credit hours in statistics courses at the 700 level or above

Required Course		
ME 777	Mechanical Engineering Seminar (The ME department requires its PhD candidates to take this mandatory 0 credit hour seminar course at least four semesters—five semesters for direct BS to PhD degree—during their PhD program.)	0

Dissertation		
ME 976	PhD Dissertation (Select 24 credit hours in dissertation)	24

Technical Electives		
<i>Select as many related hours as necessary to satisfy the total credit hour requirements (at least 42 credit hours of graduate coursework)</i>		

Total Credit Hours		72
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3. **Advisor, Advisory Committee and Plan of Study:** Before completing 12 PhD credit hours at WSU, a student must select an advisor and an advisory committee. With the help of the advisor, the student must prepare a plan of study that needs to be approved by the advisory committee, graduate coordinator and Graduate School before the comprehensive exam is attempted.
4. **Comprehensive Examination:** After completing a minimum of 18 PhD credit hours at WSU, a student must pass the comprehensive examination in at most two attempts, within two years from the start of the PhD program. Students who cannot pass the comprehensive exam in two attempts will be dismissed from the PhD program.
  - a. Details of the comprehensive exam - The exam is administered by the Graduate Coordinator once during fall and spring semester. The exam is set by the respective faculty members in thermal/fluids/energy; mechanical systems; control and robotics; or materials engineering. The open book exam lasts for four hours, and is administered by a proctor (no take-home component). The focus is on fundamental concepts and analytical skills in the area of the student's own research focus. This is graded by the concerned faculty members in their specialty. The passing grade is 70 percent. These policies may be subject to change.
5. **Dissertation Approval Examination:** Prepare a dissertation research proposal and pass an oral examination of the proposal. A student cannot attempt the examination more than twice. A student must be continuously enrolled in ME 976 after the dissertation approval examination.
6. **Dissertation Defense:** Must pass an oral examination of the dissertation.
7. **Professional and Scholarly Integrity Training Requirement:** Must complete professional and scholarly integrity training requirement, preferably during the first semester of the program.

8. **Other Program Requirements:** All other requirements are subject to college and university guidelines.

<sup>1</sup>The mathematics and computational tool courses are **not** to be considered as the same language (tool) that the Graduate School employs and these do count towards the degree.

### Applied Learning

Students in the PhD in mechanical engineering program are required to complete an applied learning or research experience to graduate from this program. The requirement can be met by successfully completing and holding a public defense of the dissertation.

## MS in Mechanical Engineering

Courses of study leading to the MS degree are available with specialization in three of the departmental faculty research areas. Details of the MS program can be found under the College of Engineering (p. 129) heading. Additional information can be obtained at the mechanical engineering webpage (<http://wichita.edu/mechanical/>)<sup>1</sup>.

<sup>1</sup>Link opens new window.

### General Admission Requirements

In addition to the requirements outlined by the Graduate School, the MSME program requires its applicants to:

1. Have a calculus-based engineering degree (having completed differential equations and physics courses with lab) with a cumulative GPA equivalent of 3.000 on a 4.000 scale, based on the undergraduate study;
2. Applicants in other majors such as math, physics or chemistry may be considered for conditional admission if they have completed calculus, including differential equations, and physics courses with lab; Undergraduate courses will be listed to correct deficiencies which will prepare them for graduate courses in mechanical engineering;
3. Department recommends the submission of GRE scores;
4. Applicants whose native language is not English must submit official, acceptable scores for either the TOEFL, or the Academic Module of the IELTS examination, or the PTE-Academic. Please visit the Graduate School website (<http://wichita.edu/gradschool/>)<sup>1</sup> to check English proficiency requirements;
5. Submit a statement of interest and two academic reference letters corroborating the applicant's undergraduate background; and
6. Depending upon the chosen concentration area, students may have to complete prerequisite coursework, as explained below.

**Traditional MSME:** Applicants must have a broad background in energy systems, including courses in thermodynamics, fluid mechanics and heat transfer; in advanced materials, including courses in materials science and engineering with laboratory experience; and in mechanical systems, including courses in statics, dynamics and design of machine elements;

**Energy and Environment Concentration:** Applicants must have a broad background in energy systems, including courses in thermodynamics, fluid mechanics and heat transfer.

**Advanced Materials Concentration:** Applicants must have a broad background in advanced materials, including courses in materials science and engineering with laboratory experience.

**Design Concentration:** Applicants must have a broad background in mechanical systems, including courses in statics, dynamics and design of machine elements.

Applicants who do not meet the listed requirements for their chosen concentration should meet with their advisor or graduate coordinator, so that they may recommend a list of undergraduate courses that will correct any deficiencies and prepare them for the chosen concentration. Prerequisite courses must be completed by the time the plan of study is to be filed.

<sup>1</sup>Link opens new window.

### General Guidelines Toward the MSME Degree

- Students must select one of the following options for completion of all MSME programs (traditional or any concentration): (1) all coursework, (2) directed project or (3) thesis.
- A plan of study (indicating whether the student is selecting the traditional MSME degree option or the MSME with concentration option) should be submitted during the first semester of enrollment and at least 60 percent of the credit hours in a plan of study must be 700 or higher level WSU courses.
- The professional and scholarly integrity training requirement must be completed, preferably during the first semester of the program.
- For a list of current courses, please visit the ME website (<http://wichita.edu/mechanical/>)<sup>1</sup>.

<sup>1</sup>Link opens new window.

### Degree Options

Course	Title	Hours
<b>Thesis Option</b>		
Select a minimum of 24 credit hours of coursework		24
Select a minimum of 6 credit hours of thesis		6
Total Credit Hours		30

Course	Title	Hours
<b>Directed Project Option</b>		
Select a minimum of 30 credit hours of coursework		30
Select 3 credit hours of directed project		3
Total Credit Hours		33

Course	Title	Hours
<b>All Coursework Option</b> <sup>2</sup>		
Select a minimum of 33 credit hours of coursework, and completion of a terminal activity <sup>3</sup>		33
Total Credit Hours		33

<sup>2</sup> At least one of the courses should have an "applied learning" component as required by WSU. Qualified courses are ME 731 Advanced Heat Exchanger Design, ME 737 Robotics and Control, and ME 872 Graduate Capstone Design.

<sup>3</sup> Details of the 33-credit-hour all coursework option: terminal activity for the all coursework option can be satisfied by passing a comprehensive exam administered by the ME department.

### Coursework Requirements

Students may select the traditional MSME degree option (with no specific concentration) or select the MSME degree option with any one of the three concentrations (energy and environment, advanced materials, and design).

**MSME (Traditional/No Concentration)**

	Thesis Option	Project Option	All Course Option
	Thesis Option	Project Option	All Course Option
Core Courses <sup>4</sup>	6	6	6
ME Courses	12	15	18
Technical electives <sup>5</sup>	6	9	9
Total	24	30	33

**MSME (with Concentration)**

	Thesis Option	Project Option	All Course Option
	Thesis Option	Project Option	All Course Option
Core Courses <sup>4</sup>	6	6	6
Concentration Courses	9	12	15
Technical Electives <sup>5</sup>	9	12	12
Total	24	30	33

<sup>4</sup> Details of the core courses are given under general course requirements below.

<sup>5</sup> Any ME course (NOT selected in the core or under ME courses) or outside department course, 600 level or above, approved by the major professor/advisor.

**Core Courses (6 credit hours)**

Core courses are those courses that are required by all MSME students for a successful completion of their degree program.

Course	Title	Hours
ME 730	Modeling of Engineering Systems	3
ME 749	Applications of Finite Element Methods in Mechanical Engineering	3
ME 777	Mechanical Engineering Seminar	0

*Note:* If the student has already taken ME 730 and/or ME 749 in their undergraduate curriculum at Wichita State University, they need to replace these core courses with the following courses, decided by their advisor/graduate coordinator. For ME 730, students must take *one of the following courses:* AE 527 Numerical Methods in Engineering, IME 724 Statistical Methods for Engineers, MATH 757 Partial Differential Equations for Engineers, MATH 758 Complex and Vector Analysis for Engineers, MATH 857 Selected Topics in Engineering Mathematics, MATH 858 Selected Topics in Engineering Mathematics II, and STAT 763 Applied Regression Analysis. For ME 749, students must take *one of the following courses:* ME 782 Engineering Applications of Computational Fluid Dynamics and Heat Transfer, ME 859 Introduction to Molecular Simulations, ME 870 Advanced Laser Applications in Manufacturing/ME 870L Advanced Laser Applications in Manufacturing Lab, AE 719 Introduction to Computational Fluid Dynamics, AE 722 Finite Element Analysis of Structures I, AE 822 Finite Element Analysis of Structures II, BME 735 Biocomputational Modeling, or IME 758 Analysis of Manufacturing Processes. Similar courses from other universities will not be considered for replacement, instead of the core courses. ME 777

Mechanical Engineering Seminar must be taken two times during the program term.

**ME Courses (variable credit hours)**

Any graduate level mechanical engineering course that is not listed as a core course could be considered as an ME course. An ME graduate level course selected by the student toward the ME course option for the MSME (traditional) degree can't be counted toward the technical electives category.

**Technical Electives (variable credit hours)**

Technical elective courses are *student-specific* courses that are 600 level or above (either within or outside of the ME department), and help students toward their research and/or enhance their quality of education. These are decided by consulting with the student's major professor or advisor.

	Thesis Option	Project Option	All Course Option
<b>Technical Electives</b>	Thesis Option	Project Option	All Course Option
Traditional Option	6	9	9
Concentration Option	9	12	12

*Note:* Not more than 6 credit hours should be taken outside the ME department for the thesis option, and not more than 9 credit hours for the project/all course option.

**Concentration Courses (variable credit hours)**

Concentration courses are those courses that are specifically tailored in terms of course objectives toward a particular concentration/area. These courses are required for successful completion of an MSME degree with a specific concentration. A concentration course selected by the student toward the concentration courses option for the MSME (concentration) degree can't be counted toward the technical electives category. Courses that could be selected toward the concentration courses option for the MSME (with concentration) degree are given under specific concentration categories.

**Program Requirements**

**Core Courses**

Core courses are those courses that are required by all MSME students for a successful completion of their degree.

Course	Title	Hours
<b>Core Courses (6 credit hours)<sup>6</sup></b>		
ME 730	Modeling of Engineering Systems	3
ME 749	Applications of Finite Element Methods in Mechanical Engineering	3
ME 777	Mechanical Engineering Seminar	0
Total Credit Hours		6

**ME Course Requirement – Traditional Program with no Concentration**

Any graduate level mechanical engineering course that is not listed as a core course could be considered as an ME course. An ME graduate level course selected by the student toward the ME Course option for the MSME — Traditional degree program can't be counted toward the technical electives category.

Course	Title	Hours
<b>ME Course Requirements for Traditional Program Options</b>		
Thesis Option	Select 12 credit hours of ME courses	12
Project Option	Select 15 credit hours of ME courses	15
All Course Option	Select 18 credit hours of ME courses	18

### Concentration Courses

Concentration courses are those courses that are specifically tailored in terms of course objectives toward a particular concentration/area. These courses are required for a successful completion of an MSME degree with a specific concentration.

#### MSME – Advanced Materials Concentration

Course	Title	Hours
<b>Advanced Materials Concentration Courses</b> <sup>7</sup>		
Select at least 9 credit hours for the thesis option. Select 12 credit hours for the project option. Select 15 credit hours for the all course option.		
ME 651	Biomaterials	3
ME 660	Polymer Materials and Engineering	3
ME 665	Selection of Materials for Design and Manufacturing	3
ME 667	Mechanical Properties of Materials	3
ME 670	Introduction to Nanotechnology	3
ME 672	Manufacturing of Composites	3
ME 673	Recovery of Engineering Materials	3
ME 728	Advanced Electronic Materials	3
ME 752	Failure Analysis Methods and Tools	3
ME 753	Advanced Materials for Energy Systems	3
ME 760	Fracture Mechanics	3
ME 762	Polymeric Composite Materials	3
ME 844	Advanced Biomaterials	3
ME 862	Synthesis and Applications of Nanomaterials	3
ME 865	Corrosion Science Engineering	3
ME 866	Advanced Fracture Mechanics	3
ME 870	Advanced Laser Applications in Manufacturing	3
ME 870L	Advanced Laser Applications in Manufacturing Lab	0

#### MSME – Design Concentration

Course	Title	Hours
<b>Design Concentration Courses</b> <sup>7</sup>		
Select at least 9 credit hours for the thesis option. Select 12 credit hours for the project option. Select 15 credit hours for the all course option.		
ME 637	Computer-Aided Engineering	3
ME 709	Injury Biomechanics	3
ME 725	Mechanical Vibrations and Acoustics	3

ME 729	Computer-Aided Analysis of Mechanical Systems	3
ME 737	Robotics and Control	3
ME 739	Advanced Machine Design	3
ME 747	Microcomputer-Based Mechanical Systems	3
ME 758	Nonlinear Controls of Electro-Mechanical Systems	3
ME 760	Fracture Mechanics	3
ME 829	Advanced Computer-Aided Analysis of Mechanical Systems	3
ME 870	Advanced Laser Applications in Manufacturing	3
ME 870L	Advanced Laser Applications in Manufacturing Lab	0

#### MSME – Energy and Environment Concentration

Course	Title	Hours
<b>Energy and Environment Concentration</b> <sup>7</sup>		
Select at least 9 credit hours for the thesis option. Select 12 credit hours for the project option. Select 15 credit hours for the all course option.		
ME 602	Engineering for the Environment	3
ME 644	Design of HVAC Systems	3
ME 702	Energy and Sustainability	3
ME 782	Engineering Applications of Computational Fluid Dynamics and Heat Transfer	3
ME 719	Basic Combustion Theory	3
ME 731	Advanced Heat Exchanger Design	3
ME 745	Design of Thermal Systems	3
ME 753	Advanced Materials for Energy Systems	3
ME 801	Boundary Layer Theory	3
ME 802	Turbulence	3
ME 854	Two-Phase Flow Heat Transfer	3
ME 859	Introduction to Molecular Simulations	3

### Technical Electives

Technical elective courses are *student-specific* courses that are 600 level or above (either within or outside of the ME department), and help students toward their research and/or enhance their quality of education. These are decided by consulting with the student's major professor or advisor.

Course	Title	Hours
<b>Technical Electives</b> <sup>8</sup>		
<i>Traditional Programs</i>		
Thesis Option: select 6 credit hours of technical electives		6
Project Option: select 9 credit hours of technical electives		9
All Course Option: select 9 credit hours of technical electives		9
<i>Concentration Programs (all concentrations)</i>		
Thesis Option: select 9 credit hours of technical electives		9
Project Option: select 12 credit hours of technical electives		12
All Course Option: select 12 credit hours of technical electives		12

<sup>6</sup> If the student has already taken ME 749 and/or ME 730 in their undergraduate curriculum at Wichita State University, they need to replace these core courses with the following courses, decided by their advisor/graduate coordinator. For ME 730, students must take *one of the following courses*: AE 527 Numerical Methods in Engineering, IME 724 Statistical Methods for Engineers, MATH 757 Partial Differential Equations for Engineers, MATH 758 Complex and Vector Analysis for Engineers, MATH 857 Selected Topics in Engineering Mathematics, MATH 858 Selected Topics in Engineering Mathematics II, or STAT 763 Applied Regression Analysis. For ME 749, students must take *one of the following courses*: ME 782 Engineering Applications of Computational Fluid Dynamics and Heat Transfer, ME 859 Introduction to Molecular Simulations, ME 870 Advanced Laser Applications in Manufacturing/ME 870L Advanced Laser Applications in Manufacturing Lab, AE 719 Introduction to Computational Fluid Dynamics, AE 722 Finite Element Analysis of Structures I, AE 822 Finite Element Analysis of Structures II, BME 735 Biocomputational Modeling, or IME 758 Analysis of Manufacturing Processes. Similar courses from other universities will not be considered for replacement, instead of the core courses. ME 777 Mechanical Engineering Seminar must be taken two times during the program term.

<sup>7</sup> Courses that are not from the list of core courses.

<sup>8</sup> Not more than 6 credit hours should be taken outside the ME department for the thesis option, and not more than 9 credit hours for the project/all course option.

### Applied Learning

Students in the MSME program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by:

1. Completing at least 6 credit hours of Thesis (ME 876), or
2. Completing ME 872, or
3. Completing at least one of the following courses — which have significant interactions with industry: ME 731 or ME 737, or
4. Completing 1 credit hour of cooperative education, or a 0 credit hour cooperative education.

## Dual/Accelerated Bachelor's to Master's in Mechanical Engineering

The dual/accelerated bachelor's to master's degree (ABMS) is designed to offer outstanding students the opportunity for advancing their careers by pursuing the bachelor's and master's in a parallel program and accelerated time frame. The ABMS also provides more focused advising, preparing the student for graduate study during their sophomore and junior years. The ABMS program develops a close working relationship between the student and a graduate advisor early in the student's academic career. Eligibility requires ME majors to be within 30–45 credit hours of graduating and have a WSU GPA of 3.250 or better.

### Certificate in Additive Manufacturing

The certificate in additive manufacturing is primarily intended for graduate students interested in enhancing their knowledge and skills in additive manufacturing and 3D printing. The curriculum focuses on key materials, technologies and benefits. It includes topics on design considerations, postprocessing, secondary operations, and important quality and safety factors.

Additional concepts important to product development in aviation and biomedical industries are addressed and exercised as term projects.

The certificate is offered jointly by the ISME and ME departments.

### Program Requirements

In addition to completing IME 222 or its equivalent as a preparatory course, the program requires satisfactory completion of 12 credit hours, three required courses and one of the elective courses listed below.

Course	Title	Hours
<b>Preparatory Course</b>		
IME 222	Engineering Graphics (or its equivalent)	
<b>Required Courses</b>		
IME 788	Rapid Prototyping and 3D Printing	3
ME 665	Selection of Materials for Design and Manufacturing	3
IME 775	Computer Integrated Manufacturing	3
<b>Elective</b>		
Select one of the following approved elective courses		3
ME 870	Advanced Laser Applications in Manufacturing <sup>1</sup>	
ME 870L	Advanced Laser Applications in Manufacturing Lab <sup>1</sup>	
BME 777	Biodegradable Materials	
AE 760AA	Micromechanics and Multi-Scale Modeling	
IME 890	Independent Study in Industrial Engineering <sup>2</sup>	
AE 890	Independent Study <sup>2</sup>	
BME 890	Independent Study <sup>2</sup>	
ME 890	Independent Study in Mechanical Engineering <sup>2</sup>	
Total Credit Hours		12

<sup>1</sup> To be taken together in the same semester.

<sup>2</sup> Independent study on additive manufacturing topics subject to approval by the certificate program coordinator.

In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

### Certificate in Nano Engineering

The graduate certificate in nano engineering is a university-issued graduate certificate. Nano engineering is the practice of engineering on the nanoscale, emphasizing the engineering aspects of the design, building and use of machines and structures on the nanoscale, dealing with nanomaterials and how they interact to make useful materials, structures and devices. It is designed for engineering and technology professionals and graduate students enrolled in related fields who are wishing to gain training in this focused topic. Students completing this certificate will have a strong understanding of the fundamentals of nano engineering as well as in-depth knowledge in critical and upcoming areas such as nanotechnology in computers and consumer electronic devices, drugs, automobiles, laser nano-built products, other nano-related manufacturing and new emerging nanotechnologies.

### Admission

Students seeking this certificate must be admitted to the Graduate School in one of the degree programs offered by the department or in

nondegree status. All graduate school policies relative to admissions apply.

### Program Requirements

Students pursuing a graduate certificate must file a plan of study for the certificate program with the graduate coordinator before half of the required credit hours are completed. Students may apply certificate coursework toward a degree program.

The certificate requires the completion of 12 credit hours from a selected list of courses. A cumulative grade point average of at least 3.000 must be maintained for all courses comprising the certificate program and no grades below *C*. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

Course	Title	Hours
<b>Required Course</b>		
ME 670	Introduction to Nanotechnology	3
<b>Electives</b>		
Select three of the following courses		9
ME 762	Polymeric Composite Materials	
ME 844	Advanced Biomaterials	
ME 862	Synthesis and Applications of Nanomaterials	
ME 865	Corrosion Science Engineering	
ME 870 & 870L	Advanced Laser Applications in Manufacturing and Advanced Laser Applications in Manufacturing Lab	
Total Credit Hours		12

### Program Completion

Students completing the certificate program will receive an appropriately worded certificate from the Graduate School, and notation will be made on the student's transcript when the certificate has been awarded.



## Fine Arts, College of

Rodney Miller, *dean*

116 Wiedemann Hall • 316-WSU-3389

College of Fine Arts Webpage (<http://wichita.edu/finearts/>)<sup>1</sup>

Wendy Hanes, *assistant dean*

Levente Sulyok, *coordinator for graduate studies in art*

Aleksander Sternfeld-Dunn, *coordinator for graduate studies in arts leadership and management*

William Flynn, *coordinator for graduate studies in music*

### School of Art, Design and Creative Industries

316-978-3555 — Jeff Pulaski, *director*

**Art Education**, 316-978-7718 — Lori Santos, *program director*

**Art History**, 316-978-7710 — Brittany Lockard, *program director*

**Graphic Design**, 316-978-7709 — Jim Hellman, *program director*

**Studio Art**, 316-978-7704 — Robert Bulp, *program director*

### School of Music

316-978-3500 — Aleksander Sternfeld-Dunn, *director*

**Music Education Studies**, 316-978-6125 — Thomas Wine, *program director*

**Musicology-Composition Studies**, 316-978-6278 — Dean Roush, *program director*

**Keyboard Studies**, 316-978-6235 — Andrew Trechak, *program director*

**Strings/Orchestra Studies**, 316-978-6202 — Mark Laycock, *program director*

**Vocal Studies**, 316-978-6608 — Pina Mozzani, *program director*

**Choral Activities**, 316-978-6429 — Ryan Beeken, *program director*

**Winds/Percussion/Band Studies**, 316-978-6434 — Steve Oare, *program director*

### School of Performing Arts

316-978-3368 — Linda Starkey, *director*

**Dance**, 316-978-3645 — C. Nicholas Johnson, *program director*

**Music Theatre**, 316-978-3056 — Amy Baker Schwiethale, *program director*

**Theatre**, 316-978-3414 — Danette Baker, *program director*

<sup>1</sup> Link opens new window.

### Courses in Fine Arts – General

- Fine Arts (FA) (p. 338)
- Media Arts (MART) (p. 362)

## Master of Arts in Arts Leadership and Management

The College of Fine Arts offers the Master of Arts in arts leadership and management. The arts leadership and management degree is a business and career focused program for those students who wish to pursue or further a career in arts executive positions. Students enhance their current knowledge in two distinct areas: arts leadership and arts

management. The leadership curriculum focuses on the techniques of adaptive leadership and its application to challenges facing the arts. The management curriculum focuses on the daily management skills all arts executives need such as strategic planning, fundraising and audience development. The degree is completed entirely online.

### Admission

Admission to the MA in arts leadership and management degree program requires a minimum of a 3.000 GPA (on a 4.000 scale) on all previously completed undergraduate and graduate coursework. Prospective students must apply to the Graduate School. A completed Graduate School application packet includes:

- Graduate School application;
- Application fee;
- Official transcripts for all previously attended colleges/universities;
- Personal interview; and
- Contact information for two professional references.

International graduate students must meet the Graduate School requirements as outlined in the admissions section of the Graduate Catalog.

Upon receipt of a complete application packet, the College of Fine Arts will review and make an admission recommendation. Applicants will be admitted for fall and spring semesters only. Priority deadlines for submitting applications to the Graduate School are July 15 for consideration for fall admission and December 1 for spring admission. International applicants living outside the United States must submit their applications by April 1 for fall admission consideration and August 1 for spring admission consideration. Applicants who apply after these deadlines may be considered for admission in the selected semester or have their application deferred to the following semester.

### Program Requirements

Course	Title	Hours
<b>Core Courses</b>		
FA 815	Contemporary Issues in American Arts Programs	3
FA 820	Entrepreneurial Thinking in the Arts	3
FA 830	Shaping Arts in the 21st Century	3
FA 835	Reaching New Audiences - Arts Marketing in the 21st Century	3
FA 840	Managing Arts Organizations	3
ID 510	Introduction to Adaptive Leadership	3
<b>Electives</b>		
Select three courses 500 level or above with advisor's approval. Suggested courses should come from public administration, business, museum studies (anthropology and history) or communications. Classes can be online or face to face.		9
<b>Final Project</b>		
FA 886	Final Project	3
Total Credit Hours		30

Students are expected to meet with their faculty advisor and create their plan of study following the completion of 12 graduate credit hours, as discussed in the Graduate School section of the Graduate Catalog.

### Applied Learning

Students in the Master of Arts in arts leadership and management program are required to complete an applied learning or research

experience to graduate from the program. This requirement can be met by taking FA 886 Final Project.

## School of Art, Design and Creative Industries

Jeff Pulaski, director

The School of Art, Design and Creative Industries offers programs leading to the Master of Fine Arts degree. Students seeking the Master of Fine Arts degree select an emphasis in ceramics, painting, photo media, printmaking or sculpture. The specific requirements are described under the appropriate program listing below.

### Courses in the School of Art, Design and Creative Industries

- Art Education (ARTE) (p. 265)
- Art History (ARTH) (p. 266)
- Graphic Design (ARTG) (p. 265)
- Studio Art (ARTS) (p. 266)

## Studio Arts

### Master of Fine Arts

The Master of Fine Arts (MFA) degree, the terminal degree for studio art, is offered for qualified students planning careers as professional artists, either working independently or as artist-teachers on the college or art school level. The program offers emphases in ceramics, painting, photo media, printmaking and sculpture.

### Programs in Studio Art

- MFA in Studio Art (p. 162)

### Courses in Studio Art

- Studio Art (ARTS) (p. 266)

## MFA in Studio Art

### Admission

Applicants must have a baccalaureate degree and substantial previous study in studio art or related field, including a minimum of 12 credit hours of art history. An overall undergraduate GPA of at least 2.750 is required. Admission to the program is for the fall semester following acceptance, although outstanding applicants may be considered for the spring semester if and when there is an opening in the program. *Preferred application deadline:* completed application materials must be received by the first Wednesday in February for admission to the following fall semester and the first Wednesday in October for the following spring semester. *Extended application deadline:* applications are considered on a rolling basis when there is room in the program with an extended deadline of April 1. The Graduate Record Examination (GRE) is not a requirement for admission.

### Application Procedures

Applicants apply directly to the Graduate School through the online application portal. All required materials, including the departmental materials listed below, can be uploaded through the online application portal. Step-by-step instructions are on the Graduate School website (<http://wichita.edu/gradapplication/>).<sup>1</sup>

### Required Departmental Materials to be Uploaded

- Application including a statement of intent (outlining artistic goals, professional objectives and expectations of graduate study experience);
- Artist's statement (outlining artistic philosophy and the nature of work presented in the portfolio);

- Resume listing education, academic and art awards and recognition, exhibitions and any relevant information;
- Three original letters of recommendation (recommenders will be listed in the online portal); and
- Portfolio with 15–20 examples of recent work, labeled with title, description, size, medium and date.

Do not send materials directly to the School of Art, Design and Creative Industries. They will be returned unopened.

**Prerequisites:** Students who have not been accepted to the degree status for the MFA in art may enroll in 800-level courses only with the written consent of the course faculty and graduate coordinator, and must be admitted to at least nondegree Category A status in any graduate area.

Questions regarding application procedures should be directed to:

Graduate Coordinator  
School of Art, Design and Creative Industries  
Wichita State University  
1845 Fairmount  
Wichita, Kansas 67260-0067  
316-978-3555  
Email: [levente.sulyok@wichita.edu](mailto:levente.sulyok@wichita.edu)

<sup>1</sup> Links opens new window.

### Program Requirements

Minimum course requirements for completion of the MFA degree are outlined below for each studio discipline. In addition, 45 of the 60 credit hours must be taken in courses numbered 800 or above.

#### MFA Studio Arts - All Emphases

Course	Title	Hours
<b>Required Courses</b>		
ARTS 790	Graduate Teaching Seminar	1
ARTS 895	Professional Practices in Studio Art	2
<b>Art History</b>		
Select a minimum of 6 credit hours		6
ARTH 520	Seminar In Art History	
ARTH 520_	Topics Courses	
ARTH 532	Independent Study in Art History	
ARTH 533	Seminar: Topics in Modern Art	
ARTH 540_	Topics Courses	
ARTH 550_	Topics Courses	
ARTH 560_	Topics Courses	
ARTH 732	Independent Study in Art History	
<b>Electives</b>		
Select a maximum of 6 credit hours		6
Art or non-art courses 500 level or above. May include ARTH, ARTE or ARTG courses. May include ARTS 800. Courses must be approved by the faculty advisor. See the Graduate Catalog and online schedule of courses.		
Total Credit Hours		15

#### MFA Studio Arts - Ceramics

Course	Title	Hours
<b>Studio — Emphasis (15 credit hours added from all emphases course table above)</b>		<b>15</b>
Complete 23 credit hours of the following		23

ARTS 870	Special Problems in Ceramics
ARTS 875	Advanced Research of Ceramic Materials

**Studio — Minor**

Select 12 credit hours from the following 12

ARTS 800	Seminar in Art Topics
ARTS 830	Special Problems in Photo Media
ARTS 845	Special Problems in Drawing
ARTS 850	Special Problems in Painting
ARTS 860	Special Problems in Printmaking - Intaglio
ARTS 880	Special Problems in Sculpture

**Terminal Project <sup>1</sup>**

ARTS 878	Terminal Project - Ceramics	5
ARTS 879	Terminal Project - Ceramics	5
Total Credit Hours		60

**MFA Studio Arts - Painting**

Course	Title	Hours
<b>Studio — Emphasis (15 credit hours added from all emphases course table above)</b>		
Complete 23 credit hours of the following 23		
ARTS 850	Special Problems in Painting	

**Studio — Minor**

Select 12 credit hours from the following 12

ARTS 800	Seminar in Art Topics
ARTS 830	Special Problems in Photo Media
ARTS 845	Special Problems in Drawing
ARTS 860	Special Problems in Printmaking - Intaglio
ARTS 870	Special Problems in Ceramics
ARTS 875	Advanced Research of Ceramic Materials
ARTS 880	Special Problems in Sculpture

**Terminal Project <sup>1</sup>**

ARTS 858	Terminal MFA Project - Painting	5
ARTS 859	Terminal MFA Project - Painting	5
Total Credit Hours		60

**MFA Studio Arts - Photo Media**

Course	Title	Hours
<b>Studio — Emphasis (15 credit hours added from all emphases course table above)</b>		
Complete 23 credit hours of the following 23		
ARTS 830	Special Problems in Photo Media	
ARTS 800	Seminar in Art Topics (photo media)	

**Studio — Minor**

Select 12 credit hours from the following 12

ARTS 800	Seminar in Art Topics
ARTS 845	Special Problems in Drawing
ARTS 850	Special Problems in Painting
ARTS 860	Special Problems in Printmaking - Intaglio
ARTS 870	Special Problems in Ceramics

ARTS 875	Advanced Research of Ceramic Materials
ARTS 880	Special Problems in Sculpture

**Terminal Project <sup>1</sup>**

ARTS 838	Terminal Project - Photo Media	5
ARTS 839	Terminal Project - Photo Media	5
Total Credit Hours		60

**MFA Studio Arts - Printmaking**

Course	Title	Hours
<b>Studio — Emphasis (15 credit hours added from all emphases course table above)</b>		
Complete 23 credit hours of the following 23		
ARTS 860	Special Problems in Printmaking - Intaglio	

**Studio — Minor**

Select 12 credit hours from the following 12

ARTS 800	Seminar in Art Topics
ARTS 830	Special Problems in Photo Media
ARTS 845	Special Problems in Drawing
ARTS 850	Special Problems in Painting
ARTS 870	Special Problems in Ceramics
ARTS 875	Advanced Research of Ceramic Materials
ARTS 880	Special Problems in Sculpture

**Terminal Project <sup>1</sup>**

ARTS 868	Terminal Project - Printmaking	5
ARTS 869	Terminal Project - Printmaking	5
Total Credit Hours		60

**MFA Studio Arts - Sculpture**

Course	Title	Hours
<b>Studio — Emphasis (15 credit hours added from all emphases course table above)</b>		
Complete 23 credit hours of the following 23		
ARTS 880	Special Problems in Sculpture	

**Studio — Minor**

Select 12 credit hours from the following 12

ARTS 800	Seminar in Art Topics
ARTS 830	Special Problems in Photo Media
ARTS 845	Special Problems in Drawing
ARTS 850	Special Problems in Painting
ARTS 860	Special Problems in Printmaking - Intaglio
ARTS 870	Special Problems in Ceramics
ARTS 875	Advanced Research of Ceramic Materials

**Terminal Project <sup>1</sup>**

ARTS 888	Terminal Project - Sculpture	5
ARTS 889	Terminal Project - Sculpture	5
Total Credit Hours		60

<sup>1</sup>The terminal project consists of an exhibition of original studio artwork, accompanied by the MFA terminal project report, which is a documentation of the candidate's studio work (slides, video, photographs, CD), a written statement and a resume.

### **Plan of Study**

In order to define a program of study for the graduate degree, students must submit the Graduate Plan of Study form leading to admission to candidacy for the degree no later than one month following the completion of 24 credit hours of graduate credit.

### **Assessment Reviews and Examinations**

**First Year Review.** At the end of the second semester, degree candidates must submit materials including digital portfolio, resume, proposed plan of study and narrative self-evaluation for review by graduate faculty in the studio emphasis area. Quality of studio work, engagement with the program of study and academic standing are assessed.

**Mid-Program Review.** At the end of the third semester, degree candidates must present materials including digital images of studio research, bibliography of relevant source material, and self-evaluation addressing issues of content, technique and contextual basis for review by graduate faculty participating in the MFA review process. Quality of studio work, scholarly engagement, academic standing and progress toward terminal project proposal are assessed.

**Terminal Project Proposal Review.** At the end of the fourth semester or before enrollment in Terminal Project courses, degree candidates must satisfactorily complete the review with graduate faculty participating in the MFA review process. Quality of studio work, academic standing and ability to begin terminal project are assessed. If the proposal review is successful, the terminal project faculty committee is determined. In the event that the proposal is not accepted, the faculty recommends that the candidate either (1) Revise the proposal for a second and final review, or (2) The student is moved to nondegree status. Eligibility for the review and enrollment in the Terminal Project coursework requires good academic standing with an overall GPA no lower than 3.000. Any exception must be approved by a majority of graduate faculty participating in the MFA review process.

**Terminal Project Progress Review.** At the end of the fifth semester, degree candidates must satisfactorily complete the review with the terminal project faculty committee. Academic standing and progress toward successful completion of terminal project are assessed.

**Terminal Project Review.** During the semester in which the degree is to be conferred, degree candidates must satisfactorily complete two reviews with the terminal project faculty committee. At or near midterm, final plans, anticipated studio work and artist statement for the terminal project exhibition are assessed. Prior to the public presentation of the terminal project exhibition, the oral examination is conducted. Quality of the terminal project and oral examination are assessed. If the examination is successful, the committee recommends the candidate to the Graduate School for degree conferral.

### **Transfer of Credit**

All graduate credit accepted for transfer will be at the discretion of the departmental advisor and graduate coordinator and must meet the transfer of credit conditions of the Graduate School. A maximum of 24 credit hours from prior graduate study may be considered for transfer to the MFA program. Final determination of transfer will be made after the student has successfully completed 12 credit hours at WSU and the first graduate review. A maximum of 12 credit hours can be applied to the emphasis. If a transfer of credit is allowed, it

may reduce course requirements but not entrance requirements. A ruling on hours converted to the MFA program by the dean of the Graduate School, graduate coordinator and the emphasis faculty is final. Graduate nondegree work obtained before admission to a planned degree program will not be accepted.

### **Applied Learning**

Students in the MFA in studio art program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by the oral defense of the thesis exhibition, as well as the written thesis paper. Terminal project courses are required by each studio area.

### **Required Prerequisite**

Students who have not been accepted to degree standing in the MFA — studio program may enroll in 800-level courses only with written consent of the course faculty and graduate coordinator.

### **Policy On Retention of Student Work**

Conforming to College Art Association MFA Standards Guidelines, the School of Art, Design and Creative Industries does not retain student work without compensation.

## **School of Music**

**Aleksander Sternfeld-Dunn, director**

William Flynn, *coordinator, graduate studies*

Graduate degree programs in the School of Music are designed to extend and broaden the professional competency of those desiring careers in music. Students may pursue graduate studies in chamber music, conducting, history-literature, music education, pedagogy, performance and composition. While providing for advanced training in the specific skills of music, these graduate programs help to cultivate the student's capacity to think — to consider impersonally, dispassionately and without prejudice any problem related to the art of music.

### **Courses in the School of Music**

- Music Applied (MUSA) (p. 374)
- Music Education (MUSE) (p. 378)
- Music Performance (MUSP) (p. 380)
- Musicology-Composition (MUSC) (p. 377)

## **Music Education**

### **Master of Music Education**

The Master of Music Education (MME) program allows for concentrations in choral music, elementary music, instrumental conducting, instrumental music (with recital option), music in special education, and voice. Conducting option may be elected (with approval) in the choral program.

### **Programs in Music Education**

- MME - Choral Music Concentration (p. 165)
- MME - Elementary Music Concentration (p. 165)
- MME - Instrumental Conducting Concentration (p. 166)
- MME - Instrumental Music Concentration (p. 166)
- MME - Music in Special Education Concentration (p. 167)
- MME - Voice Concentration (p. 167)

### **Certificates in Music Education**

- Certificate in Kodaly Method (p. 168)
- Certificate in Special Music Education - Adaptive Music (p. 168)

## Courses in Music Education

- Music Education (MUSE) (p. 378)

## MME - Choral Music Concentration

### Admission

Admission to the degree program in music education requires the completion of a Bachelor of Music Education (BME) degree, or the equivalent of a BME, from an accredited institution, as well as the contact information for three people to provide letters of recommendation. Students holding bachelor's degrees in music other than the Bachelor of Music Education must satisfy public school certification requirements to qualify for full admission. Applicants without such certification are admitted on a conditional basis pending their attainment of public school teaching credentials. Approval of the MME specialization must be acquired.

### Program Requirements

MME programs range from 32 to 36 credit hours. Core requirements and terminal project options — outlined below — are the same for each emphasis area unless specifically noted.

Course	Title	Hours
<b>Required Core</b>		<b>15</b>
MUSE 853	Research Design and Methods	
MUSE 855	Psychology of Music	
MUSE 871	History and Philosophy of Music Education	
MUSC 830	Seminar in Music Theory	
MUSC 891	Seminar in Music History pre-1750	
or MUSC 892	Seminar in Music History post-1750	
Terminal Project Options — select one of the following		2-6
MUSP 873	Graduate Recital <sup>1</sup>	
MUSE 844	Terminal Conducting Project <sup>2</sup>	
MUSE 875 & MUSE 876	Thesis Research and Thesis	
MUSE 854	Terminal Project in Music Education	
Other Option — Extra Credit Hours		6
To be selected in consultation with advisor and approved by the area director. This excludes applied, ensemble, workshops and special project credit hours.		

Course	Title	Hours
<b>Field Specialty</b>		
MUSE 790C	Choral Rehearsal Techniques	2
MUSP 691	Advanced Choral Conducting <sup>3</sup>	2
Select 2-3 credit hours from the following		2-3
MUSE 732	Instructional Methods in Middle Level/Secondary Music	
MUSC 753	Choral Literature I	
MUSC 754	Choral Literature II	
<b>Electives</b>		8-9
Must be approved by faculty advisor or graduate coordinator. May apply up to 5 credit hours of applied lessons. Two (2) credit hours of ensemble credit, 4 credit hours of workshops or 10 credit hours of Kodaly coursework.		

<sup>1</sup> Graduate Recital is not a terminal project option for music in special education.

<sup>2</sup> Required terminal project for the instrumental conducting concentration.

<sup>3</sup> If a student has had this course previously at WSU, a 2-credit-hour 790 Special Topics in conducting may be substituted.

### Applied Learning

Students in the Master of Music Education are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing either Research Design and Methods (MUSE 853), a conducting recital (MUSE 844), terminal project (MUSE 854), thesis (MUSE 876) or performance recital (MUSP 873).

## MME - Elementary Music Concentration

### Admission

Admission to the degree program in music education requires the completion of a Bachelor of Music Education (BME) degree, or the equivalent of a BME, from an accredited institution, as well as the contact information for three people to provide letters of recommendation. Students holding bachelor's degrees in music other than the Bachelor of Music Education must satisfy public school certification requirements to qualify for full admission. Applicants without such certification are admitted on a conditional basis pending their attainment of public school teaching credentials. Approval of the MME specialization must be acquired.

### Program Requirements

MME programs range from 32 to 36 credit hours. Core requirements and terminal project options — outlined below — are the same for each emphasis area unless specifically noted.

Course	Title	Hours
<b>Required Core</b>		<b>15</b>
MUSE 853	Research Design and Methods	
MUSE 855	Psychology of Music	
MUSE 871	History and Philosophy of Music Education	
MUSC 830	Seminar in Music Theory	
MUSC 891	Seminar in Music History pre-1750	
or MUSC 892	Seminar in Music History post-1750	
Terminal Project Options — select one of the following		2-6
MUSP 873	Graduate Recital <sup>1</sup>	
MUSE 844	Terminal Conducting Project <sup>2</sup>	
MUSE 875 & MUSE 876	Thesis Research and Thesis	
MUSE 854	Terminal Project in Music Education	
Other Option — Extra Credit Hours		6
To be selected in consultation with advisor and approved by the area director. This excludes applied, ensemble, workshops and special project credit hours.		

Course	Title	Hours
<b>Field Specialty</b>		
Select 6-8 credit hours from the following		6-8
MUSE 821	Leadership and Administration in Music Education	
MUSE 831	Developing Music Learning	
MUSE 617	Literacy Strategies for Content Areas: Music	
<b>Electives</b>		7-9

May include specialization in Kodaly or other courses selected in consultation with faculty advisor and with approval of graduate coordinator.

<sup>1</sup> Graduate Recital is not a terminal project option for the music in special education concentration.

<sup>2</sup> Recital is the required terminal project for the instrumental conducting concentration.

**Applied Learning**

Students in the Master of Music Education - elementary music program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing either Research Design and Methods (MUSE 853), a conducting recital (MUSE 844), terminal project (MUSE 854), thesis (MUSE 876) or performance recital (MUSP 873).

**MME - Instrumental Conducting Concentration**

**Admission**

Admission to the degree program in music education requires the completion of a Bachelor of Music Education (BME) degree, or the equivalent of a BME, from an accredited institution, as well as the contact information for three people to provide letters of recommendation. Students holding bachelor’s degrees in music other than the Bachelor of Music Education must satisfy public school certification requirements to qualify for full admission. Applicants without such certification are admitted on a conditional basis pending their attainment of public school teaching credentials. Approval of the MME specialization must be acquired.

**Program Requirements**

MME programs range from 32 to 36 credit hours. Core requirements and terminal project options — outlined below — are the same for each emphasis area unless specifically noted.

Course	Title	Hours
<b>Required Core</b>		<b>15</b>
MUSE 853	Research Design and Methods	
MUSE 855	Psychology of Music	
MUSE 871	History and Philosophy of Music Education	
MUSC 830	Seminar in Music Theory	
MUSC 891	Seminar in Music History pre-1750	
or MUSC 892	Seminar in Music History post-1750	
Terminal Project Options — select one of the following		2-6
MUSP 873	Graduate Recital <sup>1</sup>	
MUSE 844	Terminal Conducting Project <sup>2</sup>	
MUSE 875 & MUSE 876	Thesis Research and Thesis	
MUSE 854	Terminal Project in Music Education	
Other Option — Extra Credit Hours		6
To be selected in consultation with advisor and approved by the area director. This excludes applied, ensemble, workshops and special project credit hours.		

Course	Title	Hours
<b>Field Specialty</b>		
Select 8 credit hours from the following		8
MUSP 790C	Special Topics: Conducting	

MUSP 790R	Special Topics: Score Analysis	
MUSP 790AD	Rehearsal Techniques	
MUSP 790K	Performance Practicum	
Electives		7
Must be approved by faculty advisor or graduate coordinator. May apply up to 4 credit hours of workshops, 3 credit hours of ensemble credit, or 4 credit hours of applied lessons.		
Terminal Project		
MUSE 844	Terminal Conducting Project	2
Total Credit Hours		17

<sup>1</sup> Graduate Recital is not a terminal project option for the music in special education concentration.

<sup>2</sup> Recital is the required terminal project for the instrumental conducting concentration.

**Applied Learning**

Students in the Masters of Music Education - instrumental conducting concentration are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing either Research Design and Methods (MUSE 853), a conducting recital (MUSE 844), terminal project (MUSE 854), thesis (MUSE 876) or performance recital (MUSP 873).

**MME - Instrumental Music Concentration**

**Admission**

Admission to the degree program in music education requires the completion of a Bachelor of Music Education (BME) degree, or the equivalent of a BME, from an accredited institution, as well as the contact information for three people to provide letters of recommendation. Students holding bachelor’s degrees in music other than the Bachelor of Music Education must satisfy public school certification requirements to qualify for full admission. Applicants without such certification are admitted on a conditional basis pending their attainment of public school teaching credentials. Approval of the MME specialization must be acquired.

**Program Requirements**

MME programs range from 32 to 36 credit hours. Core requirements and terminal project options — outlined below — are the same for each emphasis area unless specifically noted.

Course	Title	Hours
<b>Required Core</b>		<b>15</b>
MUSE 853	Research Design and Methods	
MUSE 855	Psychology of Music	
MUSE 871	History and Philosophy of Music Education	
MUSC 830	Seminar in Music Theory	
MUSC 891	Seminar in Music History pre-1750	
or MUSC 892	Seminar in Music History post-1750	
Terminal Project Options — select one of the following		2-6
MUSP 873	Graduate Recital <sup>1</sup>	
MUSE 844	Terminal Conducting Project <sup>2</sup>	
MUSE 875 & MUSE 876	Thesis Research and Thesis	
MUSE 854	Terminal Project in Music Education	
Other Option — Extra Credit Hours		6

To be selected in consultation with advisor and approved by the area director. This excludes applied, ensemble, workshops and special project credit hours.

Course	Title	Hours
<b>Field Specialty</b>		
Select 6 credit hours from the following		6
MUSE 686	Marching Band Techniques	
MUSE 790B	Band Rehearsal Techniques	
MUSE 732	Instructional Methods in Middle Level/Secondary Music	
MUSE 821	Leadership and Administration in Music Education	
MUSE 845A	Seminar in Instrumental Music Education Literature	
MUSP 651	Advanced Conducting and Score Reading <sup>3</sup>	
Electives		9
Must be approved by faculty advisor or graduate coordinator. May apply up to 5 credit hours of applied lessons, 2 credit hours of ensemble credit, 4 credit hours of workshops or 10 credit hours of Kodaly coursework.		
Total Credit Hours		15

<sup>1</sup> Graduate Recital is not a terminal project option for the music in special education concentration.

<sup>2</sup> Recital is the required terminal project for the instrumental conducting concentration.

<sup>3</sup> Students who do not take MUSP 651 must take a minimum of 1 elective credit hour outside of MUSE courses.

*Note:* A minimum of 10 credit hours outside MUSE courses is required.

### Applied Learning

Students in the Master of Music Education - instrumental music concentration are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing either Research Design and Methods (MUSE 853), a conducting recital (MUSE 844), terminal project (MUSE 854), thesis (MUSE 876) or performance recital (MUSP 873).

## MME - Music in Special Education Concentration

### Admission

Admission to the degree program in music education requires the completion of a Bachelor of Music Education (BME) degree, or the equivalent of a BME, from an accredited institution, as well as the contact information for three people to provide letters of recommendation. Students holding bachelor's degrees in music other than the Bachelor of Music Education must satisfy public school certification requirements to qualify for full admission. Applicants without such certification are admitted on a conditional basis pending their attainment of public school teaching credentials. Approval of the MME specialization must be acquired.

### Program Requirements

MME programs range from 32 to 36 credit hours. Core requirements and terminal project options — outlined below — are the same for each emphasis area unless specifically noted.

Course	Title	Hours
<b>Required Core</b>		
		<b>15</b>
MUSE 853	Research Design and Methods	
MUSE 855	Psychology of Music	
MUSE 871	History and Philosophy of Music Education	
MUSC 830	Seminar in Music Theory	
MUSC 891	Seminar in Music History pre-1750	
or MUSC 892	Seminar in Music History post-1750	
Terminal Project Options — select one of the following		2-6
MUSP 873	Graduate Recital <sup>1</sup>	
MUSE 844	Terminal Conducting Project <sup>2</sup>	
MUSE 875 & MUSE 876	Thesis Research and Thesis	
MUSE 854	Terminal Project in Music Education	
Other Option — Extra Credit Hours		6
To be selected in consultation with advisor and approved by the area director. This excludes applied, ensemble, workshops and special project credit hours.		

Course	Title	Hours
<b>Field Specialty</b>		
Select 6–8 credit hours from the following		6-8
MUSE 611	Music for Special Education	
MUSE 822	Advanced Techniques in Special Music Education	
MUSE 823	Special Music Education Practicum	
Electives		7-9
Must be approved by faculty advisor or graduate coordinator. May apply up to 5 credit hours of applied lessons, 2 credit hours of ensemble credit, 4 credit hours of workshops or 10 credit hours of Kodaly coursework.		
Total Credit Hours		13-17

<sup>1</sup> Graduate Recital is not a terminal project option for the music in special education concentration.

<sup>2</sup> Recital is the required terminal project for the instrumental conducting concentration.

### Applied Learning

Students in the Master of Music Education - music in special education concentration are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing either Research Design and Methods (MUSE 853), a conducting recital (MUSE 844), terminal project (MUSE 854), thesis (MUSE 876) or performance recital (MUSP 873).

## MME - Voice Concentration

### Admission

Admission to the degree program in music education requires the completion of a Bachelor of Music Education (BME) degree, or the equivalent of a BME, from an accredited institution, as well as the contact information for three people to provide letters of recommendation. Students holding bachelor's degrees in music other than the Bachelor of Music Education must satisfy public school certification requirements to qualify for full admission. Applicants without such certification are admitted on a conditional basis pending their attainment of public school teaching credentials. Approval of the MME specialization must be acquired.

## Program Requirements

MME programs range from 32 to 36 credit hours. Core requirements and terminal project options — outlined below — are the same for each emphasis area unless specifically noted.

Course	Title	Hours
<b>Required Core</b>		<b>15</b>
MUSE 853	Research Design and Methods	
MUSE 855	Psychology of Music	
MUSE 871	History and Philosophy of Music Education	
MUSC 830	Seminar in Music Theory	
MUSC 891	Seminar in Music History pre-1750	
or MUSC 892	Seminar in Music History post-1750	
Terminal Project Options — select one of the following		2-6
MUSP 873	Graduate Recital <sup>1</sup>	
MUSE 844	Terminal Conducting Project <sup>2</sup>	
MUSE 875 & MUSE 876	Thesis Research and Thesis	
MUSE 854	Terminal Project in Music Education	
Other Option — Extra Credit Hours		6
To be selected in consultation with advisor and approved by the area director. This excludes applied, ensemble, workshops and special project credit hours.		

Course	Title	Hours
<b>Field Specialty</b>		
Select 6–7 credit hours from the following		6-7
MUSP 625	Voice Pedagogy	
MUSP 725	Voice Pedagogy II	
MUSC 623	Opera Literature	
MUSC 726	Voice Literature	
Electives		9
Must be approved by faculty advisor or graduate coordinator. May apply up to 5 credit hours of applied lessons, 2 credit hours of ensemble credit, 4 credit hours of workshops or 10 credit hours of Kodaly coursework. Note: a minimum of 4 credit hours must be from MUSE 500+ courses.		
Total Credit Hours		15-16

<sup>1</sup> Graduate Recital is not a terminal project option for the music in special education concentration.

<sup>2</sup> Recital is the required terminal project for the instrumental conducting concentration.

### Applied Learning

Students in the Masters of Music Education - voice concentration are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing either Research Design and Methods (MUSE 853), a conducting recital (MUSE 844), terminal project (MUSE 854), thesis (MUSE 876) or performance recital (MUSP 873).

## Certificate in Kodaly Method

The Certificate in Kodaly Method is a three-summer, graduate level, nondegree plan of study designed for music educators. The Kodaly Method, named after composer and educator Zoltan Kodaly, is a comprehensive program to train basic musical skills and teach the reading and writing of music.

The program is an experience-based approach to teaching, integrating many of the best ideas, techniques and approaches to music education. The program objective is to train elementary and secondary music educators in comprehensive music literacy in order to improve professional skills. The curriculum includes three levels of courses in both pedagogy and musicianship.

### Admission

Application procedures, audition repertoire, admission examinations and admission requirements are the same as for all other graduate programs.

Applicants must:

1. Be admitted to the Graduate School,
2. Have a GPA of no less than 3.000,
3. Have a valid teaching license in any state, or
4. Have program director's approval.

### Program Requirements

The certificate curriculum includes three levels of courses in both pedagogy and musicianship. Completion of the certificate requires students to complete three levels of courses in Kodaly methodology and three levels of courses in solfege. Students must concurrently take corresponding levels of methodology and solfege. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

Course	Title	Hours
<b>Required Courses</b>		
MUSE 761	Kodaly Methods Level One	3
MUSE 762	Kodaly Solfege Level One	2
MUSE 763	Kodaly Methods Level Two	3
MUSE 764	Kodaly Solfege Level Two	2
MUSE 765	Kodaly Methods Level Three	3
MUSE 766	Kodaly Solfege Level Three	2
Total Credit Hours		15

## Certificate in Special Music Education - Adaptive Music

The Certificate in special music education — adaptive music provides extended expertise for students who wish to provide inclusion-focused music services in public and private education settings and/or for teachers wishing to provide applied music instruction or pedagogy to persons with special learning needs. The certificate also may provide interdisciplinary expertise for professionals in allied fields who wish to incorporate music in their practices.

### Admission

Students seeking the certificate must be admitted to the Graduate School or in nondegree Category A status.

### Program Requirements

The certificate comprises five courses (three core courses with two electives). The certificate constitutes a minimum of 13 credit hours with the following course requirements:

Course	Title	Hours
<b>Introductory Course</b>		
MUSE 611	Music for Special Education	2
<b>Core Courses</b>		
MUSE 822	Advanced Techniques in Special Music Education	3
MUSE 855	Psychology of Music	3

**Electives<sup>1</sup>**

Select 5–6 credit hours from the following as advised	5-6
CSD 710	Autism Spectrum Disorder
MUSE 606	Music Methods for Early Childhood Education
MUSE 617	Literacy Strategies for Content Areas: Music
MUSE 823	Special Music Education Practicum
MUSE 831	Developing Music Learning
Total Credit Hours	13

<sup>1</sup> Other graduate electives (2–3 credit hours) as approved to foster interdisciplinary expertise in a specific area (such as autism, mental health awareness, etc.).

*Note:* Students with transcribed MUSE 611 or MUSE 617 for undergraduate credit may substitute graduate interdisciplinary electives (in consultation with program advisor) for their prior work to fulfill the 13 credit hour certificate requirement.

In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

**Master of Music**

The School of Music offers the following Master of Music degrees: MM in conducting, MM in history-literature, MM in opera performance, MM in piano pedagogy, MM in composition, MM in chamber music, MM in piano accompanying and MM in performance. Within the MM in performance degree, emphases in organ, piano, strings/wind/percussion, and voice are offered.

**Programs leading to the Master of Music Degree**

- MM - Chamber Music Concentration (p. 169)
- MM - Conducting Concentration (p. 170)
- MM - Opera Performance Concentration (p. 170)
- MM - Piano Accompanying Concentration (p. 171)
- MM - Piano Pedagogy Concentration (p. 171)
- MM in Performance (p. 172)
  - MM in Performance - Organ Emphasis (p. 173)
  - MM in Performance - Piano Emphasis (p. 173)
  - MM in Performance - Strings, Winds and Percussion Emphasis (p. 174)
  - MM in Performance - Voice Emphasis (p. 174)

**Certificates in Music Performance**

- Certificate in Professional Studies in Music Performance (p. 175)

**Courses in Music Applied, Music Performance**

- Music Applied (MUSA) (p. 374)
- Music Performance (MUSP) (p. 380)

**MM - Chamber Music Concentration Admission**

Admission to the MM program in performance requires a performance background, with a bachelor's degree in music in the performance area of specialization or the equivalent of the BM, as well as contact information for three people to provide letters of recommendation. Background deficiencies must be satisfied before admission to candidacy. All performance degree candidates must complete a satisfactory audition in their performance area of specialization.

**Program Requirements**

In addition to the core requirements for all MM programs, students must complete the coursework listed below. The program requires a total of 32 hours.

Course	Title	Hours
<b>Core Required for all MM Concentrations</b>		
MUSC 852	Introduction to Bibliography and Research	3
MUSC 830	Seminar in Music Theory	3
Select 6 credit hours from the following in history and theory:		
MUSC 832	Topics in Music Analysis	6
MUSC 891	Seminar in Music History pre-1750	
MUSC 892	Seminar in Music History post-1750	
<b>Courses Required for Concentration</b>		
Graduate Performance Study — instruction in major medium (applied lessons)		10
MUSA 732_	Applied Music Instruction (repeatable)	
MUSA 734_	Applied Music Instruction (repeatable)	
Chamber Music Ensemble — appropriate chamber ensemble		4
MUSP 710__, MUSP 711__, MUSP 712__, MUSP 713__, MUSP 714__ (A) Orchestra, (B) Symphonic Wind Ensemble or Concert Band, (J) Piano Accompaniment, (M) Jazz Combo, (N) Woodwind Ensemble, (O) Saxophone Quartet, (P) Brass Chamber Ensemble, (R) Percussion Ensemble, (S) String Ensemble and String Chamber Ensemble, (T) Jazz Arts Ensembles I and II, (V) Guitar Ensemble, (X) New Music Ensemble. Repeatable for credit.		
<b>Other Required Coursework</b>		
MUSC 786	Chamber Music Literature I	2
MUSC 787	Chamber Music Literature II	2
Graduate Recital		
MUSP 873	Graduate Recital	2
Total Credit Hours		32

A formal graduate recital, in lieu of a thesis, must be presented in partial fulfillment of the requirements for the MM degree with emphasis in performance. In order to receive permission to schedule a degree recital, students must satisfy the expectations of the respective performance area. Recital permission must be obtained no later than the semester before the semester in which the recital is to be performed. The student's performance repertoire and the recital program must be in accordance with the guidelines and expectations established by the respective performance area.

**Examinations**

All degree candidates in the School of Music must pass an oral comprehensive examination. The oral comprehensive examination for thesis candidates includes a thesis defense.

*Note:* Students studying for the MM degree with emphasis in performance should plan to be in residence during at least one fall or spring semester, since continuous study opportunities may not exist in summer session.

**Applied Learning**

Students in the Masters of Music - chamber music concentration are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by a terminal recital (MUSP 873) given in their second year.

## MM - Conducting Concentration

The Master of Music (MM) degree, conducting concentration, is designed to accommodate a small number of students (up to four per year) who receive extensive individualized conducting preparation with the university's resident band and orchestra conductors. Candidates have rehearsal/conducting opportunities with both large and small ensembles.

### Admission

Students must have completed a baccalaureate degree in music. Contingent upon admission into the conducting program and the approval of the appropriate conducting faculty member, all candidates should be prepared to:

1. Complete a satisfactory conducting audition conducting a university ensemble;
2. Perform on their primary performing instrument;
3. Demonstrate their understanding of score analysis; and/or
4. Complete a personal interview.

### Program Requirements

The MM degree requires completion of a minimum of 32 graduate credit hours, including a thesis or recital as indicated for the respective concentration. In addition to the core requirements for all MM concentrations, the program culminates in a conducting recital using university students and ensembles. Metropolitan or ad hoc ensembles may be substituted with faculty approval.

Each plan of study must include 12 credit hours in the MM core requirement, including:

Course	Title	Hours
<b>Core Required for all MM Concentrations</b>		
MUSC 852	Introduction to Bibliography and Research	3
MUSC 830	Seminar in Music Theory	3
Select 6 credit hours from the following in history and theory:		6
MUSC 832	Topics in Music Analysis	
MUSC 891	Seminar in Music History pre-1750	
MUSC 892	Seminar in Music History post-1750	
<b>Courses Required for Concentration</b>		
Approved Electives		6
Music or nonmusic courses 500 or above; May include applied lessons, ensembles, languages, etc. Courses must be approved by faculty advisor		
Approved Ensembles — conducting observation laboratories assigned by major advisor		4
MUSP 710B	Wind Ensemble (repeatable)	
MUSP 711A	Orchestra (repeatable)	
MUSP 713B	Symphonic Band (repeatable)	
MUSP 713F	Concert Chorale (repeatable)	
<b>Other Requirements</b>		
MUSP 790C	Special Topics: Conducting	2
MUSP 790R	Special Topics: Score Analysis	2
MUSP 790K	Performance Practicum	2
MUSP 790AD	Rehearsal Techniques	2
<b>Graduate Conducting Recital</b>		
MUSP 873	Graduate Recital (repeatable)	2
<b>Total Credit Hours</b>		<b>32</b>

### Examinations

All degree candidates in the School of Music must pass an oral comprehensive examination. The oral comprehensive examination for thesis candidates includes a thesis defense.

### Applied Learning

Students in the Master of Music - conducting concentration are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by a terminal conducting recital (MUSP 873) given in their second year.

## MM - Opera Performance Concentration

This degree program is designed to provide specialized training in opera performance with graduates gaining more experience and training in all phases of opera production. While the MM in performance degree with an emphasis in voice provides for some experience with opera performance, the opera concentration provides greater focus with more specialized coursework, training and experience, which better prepares students who are accepted into the program to succeed in this competitive career field. The degree requires 4 more credit hours (total of 36) than the MM in performance degree with an emphasis in voice.

### Admission

Admission to the program is based on the results of a live audition and an interview with the director of the WSU Opera Theatre and voice faculty. Prior to scheduling an audition, send the following to the director of opera and music theatre:

- Headshot and resume;
- A statement of academic and career goals; and
- A recording of three selections in various languages and styles.

When a live audition is not possible, a video audition will be considered. Students admitted to this program must show potential for future success and should have already had some experience with opera. Specific requirements include:

1. Strong operatic vocal potential;
2. Good academic background with a minimum 2.750 GPA;
3. Some stage experience, including a basic acting class; and
4. Conversational ability in at least one of the following languages: French, German or Italian.

### Program Requirements

The Master of Music (MM) degree with a concentration in opera performance requires the completion of a minimum of 36 graduate credit hours, including a graduate performance recital, two leading roles in opera productions, and direction and assistance in two productions. Students must complete the coursework listed below:

Course	Title	Hours
<b>Core Required for all MM Concentrations</b>		
MUSC 852	Introduction to Bibliography and Research	3
MUSC 830	Seminar in Music Theory	3
Select 6 credit hours from the following in history and theory:		6
MUSC 832	Topics in Music Analysis	
MUSC 891	Seminar in Music History pre-1750	
MUSC 892	Seminar in Music History post-1750	
<b>Courses Required for Concentration</b>		
Graduate Voice Study—10 credit hours of instruction in major medium		10

MUSA 732Y	Applied Music Instruction for Majors - Voice (repeatable)	
MUSA 734Y	Applied Music Instruction for Majors - Voice (repeatable)	
Other Requirements—12 credit hours from the following		12
MUSC 623	Opera Literature	
MUSP 711K	Opera Theatre (repeatable)	
MUSP 712K	Opera Theatre (repeatable)	
MUSP 714K	Opera Theatre (repeatable)	
MUSP 762	Opera Styles	
MUSP 773	Acting For Singers	
Graduate Recital		
MUSP 873	Graduate Recital	2
Total Credit Hours		36

### Examinations

All degree candidates in the School of Music must pass an oral comprehensive examination. The oral comprehensive examination for thesis candidates includes a thesis defense.

### Applied Learning

Students in the Masters of Music - opera performance concentration are required to complete an applied learning or research experience to graduate from the program. The requirement must be met by a terminal recital (MUSP 873) given in their second year.

## MM - Piano Accompanying Concentration

The Master of Music (MM) degree with concentration in piano accompanying gives primary attention to the development of accompanying skills and artistry; secondary, but significant emphasis is placed on an acceptable demonstration of keyboard performance at the master's degree level. The accompanying concentration includes preparation in the area of instrumental and vocal literature in relation to the need for piano accompaniment in the area of performance development.

### Admission

Students must have completed a bachelor's degree in music in piano performance or its equivalent, as well as contact information for three people to provide letters of recommendation. All candidates must complete a satisfactory audition. Deficiencies, if noted, must be satisfied before admission to candidacy for the degree.

### Program Requirements

The Master of Music degree with a concentration in piano accompanying requires the completion of a minimum of 33 graduate credit hours, including two accompanied full-hour degree recitals (one vocal and one instrumental recital in either order). In addition to the core requirements for all MM programs, students must complete the coursework listed below. The program requires a total of 33 credit hours.

Course	Title	Hours
<b>Core Required for all MM Concentrations</b>		
MUSC 852	Introduction to Bibliography and Research	3
MUSC 830	Seminar in Music Theory	3
Select 6 credit hours from the following in history and theory:		6
MUSC 832	Topics in Music Analysis	
MUSC 891	Seminar in Music History pre-1750	

MUSC 892	Seminar in Music History post-1750
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### Courses Required for Concentration

Graduate Piano Study—12 credit hours from the following		12
MUSA 732P	Applied Music Instruction for Majors - Piano (repeatable)	
MUSP 723	Applied Piano Accompanying	
MUSP 724	Applied Piano Accompanying	
Support Courses		
MUSP 580	Piano Pedagogy	2
MUSC 726	Voice Literature	3
MUSC 685	String Literature & Materials	2
Graduate Recital		
MUSP 871	Graduate Accompanying Recital: Vocal	1
MUSP 872	Graduate Accompanying Recital: Instrumental	1
Total Credit Hours		33

### Examinations

All degree candidates in the School of Music must pass an oral comprehensive examination. The oral comprehensive examination for thesis candidates includes a thesis defense.

### Applied Learning

Students in the Master of Music - piano accompanying concentration are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by giving two graduate accompanying recitals, one for voice (MUSP 871) and one for instrumentalists (MUSP 872).

## MM - Piano Pedagogy Concentration

The Master of Music (MM) degree with a concentration in piano pedagogy gives primary attention to the development of tutorial concepts specific to keyboard skills and artistry; secondary, but significant, emphasis is placed on an acceptable demonstration of keyboard performance at the master's degree level. The pedagogy option includes extensive preparation in the area of keyboard literature and stresses the relationship of performance to selected repertoire and teaching-skill development.

### Admission

Students must have completed a bachelor's degree in music in piano performance or its equivalent. All candidates must complete a satisfactory audition. Applicants must also submit (1) a letter of recommendation from a professor or teacher familiar with the applicant's teaching, or if the applicant has no prior teaching experience a general letter of recommendation will be accepted; and (2) a personal statement outlining the applicant's goals and objectives for study and/or a statement of teaching philosophy. Deficiencies, if noted, must be satisfied before admission to candidacy for the degree.

### Program Requirements

The MM degree, piano pedagogy concentration, requires the completion (minimum) of 32 graduate credit hours, including a graduate degree recital or a two-hour professional inservice presentation project (MUSP 874) as the terminal requirement. The degree must include the following:

Course	Title	Hours
<b>Core Required for all MM Concentrations</b>		
MUSC 852	Introduction to Bibliography and Research	3
MUSC 830	Seminar in Music Theory	3
Select 6 credit hours from the following in history and theory: 6		
MUSC 832	Topics in Music Analysis	
MUSC 891	Seminar in Music History pre-1750	
MUSC 892	Seminar in Music History post-1750	
<b>Courses Required for Concentration</b>		
Graduate Piano Study—6 credit hours of instruction		6
MUSA 732P	Applied Music Instruction for Majors - Piano	
MUSA 734P	Applied Music Instruction for Majors - Piano	
<b>Support Courses</b>		
MUSP 760	Group Piano Practicum	2
MUSP 761	Studio Piano Practicum	2
MUSP 843	Piano Pedagogy Seminar	2
MUSC 782	Piano Literature I	2
MUSC 783	Piano Literature II	2
<b>Approved Electives</b>		2
Music or nonmusic courses 500 or above; may include applied lessons, ensembles, languages, etc. Courses must be approved by faculty advisor.		
<b>Terminal Project — select one of the following</b>		2
MUSP 873	Graduate Recital	
MUSP 874	Professional In-Service Presentation Project	
<b>Total Credit Hours</b>		<b>32</b>

### Examinations

All degree candidates in the School of Music must pass an oral comprehensive examination. The oral comprehensive examination for thesis candidates includes a thesis defense.

### Applied Learning

Students in the Master of Music in piano pedagogy program are required to complete an applied learning experience to graduate from the program. The requirement can be met by a terminal recital (MUSP 873) given in their second year, or by a professional inservice presentation (MUSP 874).

## MM - Performance Concentration

### Additional Requirements for Admission

Admission to the MM program in performance requires a performance background, with a bachelor's degree in music in the performance area of specialization or the equivalent of the BM, as well as contact information for three people to provide letters of recommendation. Background deficiencies must be satisfied before admission to candidacy. All performance degree candidates must complete a satisfactory audition in their performance area of specialization.

### Program Requirements

A formal graduate recital, in lieu of a thesis, must be presented in partial fulfillment of the requirements for the MM degree with emphasis in performance. In order to receive permission to schedule a degree recital, students must satisfy the expectations of the respective performance area. Recital permission must be obtained no later than the semester before the semester in which the recital is to be performed. The student's performance repertoire and the recital program must be

in accordance with the guidelines and expectations established by the respective performance area.

Students studying for the MM degree with emphasis in performance should plan to be in residence during at least one fall or spring semester, since continuous study opportunities may not exist in summer session.

The Master of Music Performance degree requires 32 credit hours, and offers emphases in organ, piano, strings/winds/percussion, and voice.

### Applied Learning

Students in the Masters of Music in performance program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by a terminal recital (MUSP 873) given in their second year.

### Applied Music - Private Study (MUSA) Courses for Graduate/Undergraduate Credit

Course	Title	Hours
MUSA 712	Applied Music Instruction for Nonmajors	2
MUSA 731_	Applied Music Instruction	1
MUSA 732_	Applied Music Instruction	2
MUSA 734_	Applied Music Instruction	4

### Applied Music Media Designations

A	Bassoon
B	Cello
C	Clarinet
D	Euphonium
E	Flute
F	French Horn
G	Classical Guitar
J	Guitar
K	Harp
L	Oboe
M	Organ
N	Percussion
P	Piano
Q	Viola da Gamba
R	String Bass
S	Trombone
T	Trumpet
U	Tuba
V	Viola
W	Violin
X	Saxophone
Y	Voice
Z	Electric Bass

### Emphases in the Master of Music Performance Concentration

- MM - Performance Concentration - Organ Emphasis (p. 173)
- MM - Performance Concentration - Piano Emphasis (p. 173)
- MM - Performance Concentration - Strings, Winds and Percussion Emphasis (p. 174)
- MM - Performance Concentration - Voice Emphasis (p. 174)

### Certificates in Music Performance

- Certificate in Professional Studies in Music Performance (p. 175)

### Courses in Music Applied, Music Performance

- Music Applied (MUSA) (p. 374)
- Music Performance (MUSP) (p. 380)

## MM - Performance Concentration - Organ Emphasis

### Admission

Admission to the MM program in performance requires a performance background, with a bachelor's degree in music in the performance area of specialization or the equivalent of the BM, as well as contact information for three people to provide letters of recommendation. Background deficiencies must be satisfied before admission to candidacy. All performance degree candidates must complete a satisfactory audition in their performance area of specialization.

### Program Requirements

The MM degree requires completion of a minimum of 32 graduate credit hours, including a thesis or recital as indicated for the respective concentration. Each plan of study must include 12 credit hours in the MM core requirement including:

Course	Title	Hours
<b>Core Required for all MM Concentrations</b>		
MUSC 852	Introduction to Bibliography and Research	3
MUSC 830	Seminar in Music Theory	3
Select 6 credit hours from the following in history and theory:		6
MUSC 832	Topics in Music Analysis	
MUSC 891	Seminar in Music History pre-1750	
MUSC 892	Seminar in Music History post-1750	
<b>Courses Required for Concentration</b>		
Graduate Organ Study — 10 credit hours of instruction in the major medium		10
MUSA 732M	Applied Music Instruction for Majors - Organ (repeatable)	
MUSA 734M	Applied Music Instruction for Majors - Organ (repeatable)	
<b>Support Courses</b>		
MUSC 587	Organ Literature & Design I	2
MUSC 588	Organ Literature & Design II	2
MUSP 596	Organ Pedagogy	2
MUSP 599	Organ Keyboard Skills, Service Playing and Accompanying	2
Graduate Recital		
MUSP 873	Graduate Recital	2
Total Credit Hours		32

A formal graduate recital, in lieu of a thesis, must be presented in partial fulfillment of the requirements for the MM degree with emphasis in performance. In order to receive permission to schedule a degree recital, students must satisfy the expectations of the respective performance area. Recital permission must be obtained no later than the semester before the semester in which the recital is to be performed. The student's performance repertoire and the recital program must be in accordance with the guidelines and expectations established by the respective performance area.

### Examinations

All degree candidates in the School of Music must pass an oral comprehensive examination. The oral comprehensive examination for thesis candidates includes a thesis defense.

*Note:* Students studying for the MM degree with emphasis in performance should plan to be in residence during at least one fall or spring semester, since continuous study opportunities may not exist in summer session.

### Applied Learning

Students in the Masters of Music - performance concentration in organ program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by a terminal recital (MUSP 873) given in their second year.

## MM - Performance Concentration - Piano Emphasis

### Admission

Admission to the MM program in performance requires a performance background, with a bachelor's degree in music in the performance area of specialization or the equivalent of the BM, as well as contact information for three people to provide letters of recommendation. Background deficiencies must be satisfied before admission to candidacy. All performance degree candidates must complete a satisfactory audition in their performance area of specialization.

### Program Requirements

The MM degree requires completion of a minimum of 32 graduate credit hours, including a thesis or recital as indicated for the respective concentration. Each plan of study must include 12 credit hours in the MM core requirement, including:

Course	Title	Hours
<b>Core Required for all MM Concentrations</b>		
MUSC 852	Introduction to Bibliography and Research	3
MUSC 830	Seminar in Music Theory	3
Select 6 credit hours from the following in history and theory:		6
MUSC 832	Topics in Music Analysis	
MUSC 891	Seminar in Music History pre-1750	
MUSC 892	Seminar in Music History post-1750	
<b>Courses Required for Concentration</b>		
Graduate Piano Study — 10 credit hours of instruction in the major medium		10
MUSA 732P	Applied Music Instruction for Majors - Piano	
MUSA 734P	Applied Music Instruction for Majors - Piano	
<b>Support Courses</b>		
MUSP 580	Piano Pedagogy	2
MUSC 782	Piano Literature I	2
MUSC 783	Piano Literature II	2
Electives		2
Music or nonmusic courses 500 or above; may include applied lessons, ensembles, languages, etc. Courses must be approved by faculty advisor.		
Graduate Recital		
MUSP 873	Graduate Recital	2
Total Credit Hours		32

A formal graduate recital, in lieu of a thesis, must be presented in partial fulfillment of the requirements for the MM degree with emphasis in performance. In order to receive permission to schedule a degree recital, students must satisfy the expectations of the respective performance area. Recital permission must be obtained no later than the semester before the semester in which the recital is to be performed. The student's performance repertoire and the recital program must be in accordance with the guidelines and expectations established by the respective performance area.

**Examinations**

All degree candidates in the School of Music must pass an oral comprehensive examination. The oral comprehensive examination for thesis candidates includes a thesis defense.

*Note:* Students studying for the MM degree with emphasis in performance should plan to be in residence during at least one fall or spring semester, since continuous study opportunities may not exist in summer session.

**Applied Learning**

Students in the Masters of Music- performance concentration in piano are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by a terminal recital (MUSP 873) given in their second year.

## MM - Performance Concentration - Strings, Winds and Percussion Emphasis

**Admission**

Admission to the MM program in performance requires a performance background, with a bachelor's degree in music in the performance area of specialization or the equivalent of the BM, as well as contact information for three people to provide letters of recommendation. Background deficiencies must be satisfied before admission to candidacy. All performance degree candidates must complete a satisfactory audition in their performance area of specialization.

**Program Requirements**

The MM degree requires completion of a minimum of 32 graduate credit hours, including a thesis or recital as indicated for the respective concentration. Each plan of study must include 12 credit hours in the MM core requirement, including:

Course	Title	Hours
<b>Core Required for all MM Concentrations</b>		
MUSC 852	Introduction to Bibliography and Research	3
MUSC 830	Seminar in Music Theory	3
Select 6 credit hours from the following in history and theory: 6		
MUSC 832	Topics in Music Analysis	
MUSC 891	Seminar in Music History pre-1750	
MUSC 892	Seminar in Music History post-1750	
<b>Courses Required for Concentration</b>		
Graduate Performance Study — 10 credit hours of instruction in major medium		10
MUSA 732_	Applied Music Instruction (repeatable)	
MUSA 734_	Applied Music Instruction (repeatable)	
Small Chamber Ensemble — Audition Required		
Select 2 credit hours from the following		2

MUSP 710__, MUSP 711__, MUSP 712__, MUSP 713__, MUSP 714__ (A) Orchestra, (B) Symphonic Wind Ensemble or Concert Band, (J) Piano Accompaniment, (M) Jazz Combo, (N) Woodwind Ensemble, (O) Saxophone Quartet, (P) Brass Chamber Ensemble, (R) Percussion Ensemble, (S) String Ensemble and String Chamber Ensemble, (T) Jazz Arts Ensembles I and II, (V) Guitar Ensemble, (X) New Music Ensemble.	
Electives	6
Music or nonmusic courses 500 or above; may include applied lessons, ensembles, languages, etc. Courses must be approved by faculty advisor.	
Graduate Recital	
MUSP 873	Graduate Recital 2
Total Credit Hours	32

A formal graduate recital, in lieu of a thesis, must be presented in partial fulfillment of the requirements for the MM degree with emphasis in performance. In order to receive permission to schedule a degree recital, students must satisfy the expectations of the respective performance area. Recital permission must be obtained no later than the semester before the semester in which the recital is to be performed. The student's performance repertoire and the recital program must be in accordance with the guidelines and expectations established by the respective performance area.

**Examinations**

All degree candidates in the School of Music must pass an oral comprehensive examination. The oral comprehensive examination for thesis candidates includes a thesis defense.

*Note:* Students studying for the MM degree with emphasis in performance should plan to be in residence during at least one fall or spring semester, since continuous study opportunities may not exist in summer session.

**Applied Learning**

Students in the Masters of Music in performance concentration - strings, winds and percussion emphasis are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by a terminal recital (MUSP 873) given in their second year.

## MM - Performance Concentration - Voice Emphasis Admission

Candidates for admission to the MM program in performance must have completed a bachelor's degree in music in the performance area of specialization or the equivalent of the BM, as well as contact information for three people to provide letters of recommendation. Background deficiencies must be satisfied before admission to candidacy. All voice performance degree candidates must complete a satisfactory audition in their performance area of specialization.

**Program Requirements**

The MM degree requires completion of a minimum of 32 graduate credit hours, including a thesis or recital as indicated for the respective concentration. Each plan of study must include 12 credit hours in the MM core requirement including:

Course	Title	Hours
<b>Core Required for all MM Concentrations</b>		
MUSC 852	Introduction to Bibliography and Research	3
MUSC 830	Seminar in Music Theory	3
Select 6 credit hours from the following in history and theory: 6		

MUSC 832	Topics in Music Analysis	
MUSC 891	Seminar in Music History pre-1750	
MUSC 892	Seminar in Music History post-1750	
<b>Courses Required for Concentration</b>		
Graduate Voice Study — 10 credit hours of instruction in the major medium		10
MUSA 732Y	Applied Music Instruction for Majors - Voice	
MUSA 734Y	Applied Music Instruction for Majors - Voice	
<b>Other</b>		
MUSP 625	Voice Pedagogy	2
MUSC 726	Voice Literature	3
Electives		3
Music or nonmusic courses 500 or above; may include applied lessons, ensembles, languages, etc. Courses must be approved by faculty advisor		
Recommended Electives		
MUSC 623	Opera Literature	
MUSP 725	Voice Pedagogy II	
MUSP 711E	Opera Lab	
Graduate Recital		
MUSP 873	Graduate Recital	2
Total Credit Hours		32

A formal graduate recital, in lieu of a thesis, must be presented in partial fulfillment of the requirements for the MM degree with emphasis in performance. In order to receive permission to schedule a degree recital, students must satisfy the expectations of the respective performance area. Recital permission must be obtained no later than the semester before the semester in which the recital is to be performed. The student's performance repertoire and the recital program must be in accordance with the guidelines and expectations established by the respective performance area.

### Examinations

All degree candidates in the School of Music must pass an oral comprehensive examination. The oral comprehensive examination for thesis candidates includes a thesis defense.

*Note:* Students studying for the MM degree with emphasis in performance should plan to be in residence during at least one fall or spring semester, since continuous study opportunities may not exist in summer session.

### Applied Learning

Students in the Masters of Music - performance concentration in voice program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by a terminal recital (MUSP 873) given in their second year.

## Certificate in Professional Studies in Music Performance

The professional studies in music performance certificate is a special one-year, graduate level, nondegree course of study that addresses the needs of individuals preparing for performance careers. In this program, ongoing development of technique and musicianship is accomplished in a nondegree context, with emphasis placed on private lessons, practice, ensemble participation, and preparation for professional auditions or competitions.

Candidates may pursue study in the following performance areas:

- Chamber Music;
- Conducting;
- Keyboard;
- Jazz;
- Strings;
- Voice/Opera; or
- Wind/Percussion.

The program's objective is for students to focus on their primary area of study in order to obtain professional employment. The program often follows completion of a master's degree, but can be taken following the completion of an undergraduate degree. In order to achieve the objective, an individual curriculum is designed by the advisor in collaboration with the student to meet the student's specific needs.

### Admission

Application procedures, audition repertoire, admission examinations, and admission requirements are the same as for all other graduate programs. Applicants must be admitted to the Graduate School, and have a GPA of no less than 3.000.

### Program Requirements

In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

Course	Title	Hours
<b>Required Courses Fall Semester</b>		<b>9</b>
	Applied Lessons	
	Ensemble	
	Independent Study	
	Guided Electives <sup>1</sup>	
<b>Required Courses Spring Semester</b>		<b>9</b>
	Applied Lessons	
	Ensemble	
	Independent Study	
	Guided Electives <sup>1</sup>	
Total Credit Hours		18

<sup>1</sup> Guided electives are music or nonmusic courses 500-level or above with advisor's approval.

## Musicology-Composition

### Programs in Musicology-Composition

- MM - Composition Concentration (p. 175)
- MM - History-Literature Concentration (p. 176)

### Courses in Musicology-Composition

- Musicology-Composition (MUSC) (p. 377)

## MM - Composition Concentration

### Admission

Admission to this area requires a bachelor's degree in music with a major in composition or the demonstrated equivalent. Background deficiencies must be satisfied before students may enroll in graduate composition courses. Applicants also must submit a portfolio including pieces — scores and live recordings (when appropriate) — demonstrating a variety of contemporary techniques, form and instrumentation. Approval for admission to candidacy is contingent upon the candidate's demonstrated ability to complete a final project in composition.

### Program Requirements

In addition to the core requirements for all MM programs, students must complete the coursework listed below. The program requires a total of 32 credit hours.

Course	Title	Hours
<b>Core Required for all MM Concentrations</b>		
MUSC 852	Introduction to Bibliography and Research	3
MUSC 830	Seminar in Music Theory	3
Select 6 credit hours of the following in history and theory:		6
MUSC 832	Topics in Music Analysis	
MUSC 891	Seminar in Music History pre-1750	
MUSC 892	Seminar in Music History post-1750	
<b>Courses Required for Concentration</b>		
<i>Electives</i>		
Select music or nonmusic courses 500 or above; may include applied lessons, ensembles, languages, etc. Courses must be approved by the faculty advisor		10
<i>Other Requirements</i>		
MUSC 840A	Seminar in the Techniques of Composition	2
MUSC 860	Advanced Composition (four credit hours total)	4
MUSC 875	Thesis Research	2
MUSC 876	Thesis	2
Total Credit Hours		32

In addition, students must complete a terminal project which must consist of the following:

1. A composition of major proportions, or
2. A body of works in various media.

Composition majors may be required by the thesis committee to have a work or works performed publicly. The final thesis must be notated using computer software and submitted digitally in keeping with the procedures established through the Graduate School of Wichita State University.

#### Applied Learning

Students in the Masters of Music in composition program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by the completion of a thesis (MUSC 876) that includes an original musical composition of substantial breadth.

## MM - History-Literature Concentration

### Admission

Admission to the Master of Music (MM) degree program, history-literature concentration, requires a Bachelor of Music or Bachelor of Arts with a major in music or the demonstrated equivalent. Applicants must submit a letter of reference from a professor or teacher familiar with their writing and a writing sample of no more than 15 pages.

### Program Requirements

Completion of a Master of Music (MM) degree, history-literature concentration, requires a demonstration of reading proficiency in German, French, Italian or other language to be approved by an advisor. This requirement may be fulfilled by the equivalent of two semesters of language study at the undergraduate level at the discretion of the advisor. Reading proficiency tests are administered by the student's

committee or part thereof before the student schedules their thesis defense. A thesis and thesis defense are also required for the degree.

In addition to the core requirements for all MM programs, students must complete the coursework listed below. The program requires a total of 32 credit hours.

Course	Title	Hours
<b>Core Required for all MM Concentrations</b>		
MUSC 852	Introduction to Bibliography and Research	3
MUSC 830	Seminar in Music Theory	3
Select 6 credit hours from the following in history and theory:		6
MUSC 832	Topics in Music Analysis	
MUSC 891	Seminar in Music History pre-1750	
MUSC 892	Seminar in Music History post-1750	
<b>Additional Music History Requirements</b>		
MUSC 891	Seminar in Music History pre-1750	3
or MUSC 892	Seminar in Music History post-1750	
<i>Approved Electives</i>		
Approved Electives - Select music or nonmusic courses 500 or above. May include applied lessons, ensembles, language, etc.		13
<i>Thesis Requirements</i>		
MUSC 875	Thesis Research	2
MUSC 876	Thesis	2
Total Credit Hours		32

#### Applied Learning

Students in the Masters of Music in history and literature concentration are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completion of a thesis document (MUSC 876).

## School of Performing Arts

Linda Starkey, director

The School of Performing Arts houses the dance, music theatre and theatre programs.

#### Courses in the School of Performing Arts

- Dance (DANC) (p. 319)
- Theatre (THEA) (p. 416)

*Note:* Although there is no graduate degree in Performing Arts, these courses are available for graduate study.

## Health Professions, College of

**Gregory Hand, dean**

**400 Ahlberg Hall • 316-WSU-3600**

College of Health Professions Webpage (<http://wichita.edu/chp/>)<sup>1</sup>

**Voncella McCleary-Jones, associate dean**

**Molly Brown, assistant dean**

### Departments

**Advanced Education in General Dentistry**, 316-978-8350 — Dean Elledge, *program director*

**Communication Sciences and Disorders**, 316-978-3240 — Douglas Parham, *chairperson*; Cynthia Richburg, *graduate coordinator, audiology*; Trisha Self, *graduate coordinator, PhD*; Douglas Parham, *graduate coordinator, master of arts in communication sciences and disorders*

**Dental Hygiene**, 316-978-3614 — Lisa Belt, *chairperson*

**Medical Laboratory Sciences**, 316-978-3146 — Diana Cochran-Black, *chairperson*

**Physical Therapy**, 316-978-3621 — MLisa Shelden, *chairperson and graduate coordinator*

**Physician Assistant**, 316-978-3011 — LaDonna Hale, *chairperson*; Gina Brown, *program director and graduate coordinator*

**Public Health Sciences**, 316-978-3060 — Nicole Rogers, *chairperson*; Jacie Green, *graduate coordinator*

**School of Nursing**, 316-978-3610 — Debra Pile, *interim chairperson*; Nicole Delimont, *graduate coordinator*

The College of Health Professions offers graduate programs leading to:

- Master of Arts in communication sciences and disorders,
- Doctor of Philosophy in communication sciences and disorders,
- Doctor of Audiology,
- Doctor of Physical Therapy,
- Master of Physician Assistant,
- Master of Arts in aging studies,
- Master of Health Administration,
- Master of Science in Nursing, and
- Doctor of Nursing Practice.

Admission to these programs requires a bachelor's degree and the fulfillment of requirements listed for each program elsewhere in the Graduate Catalog.

### Certificates

The College of Health Professions offers certificates in aging studies, health administration and public health, as well as the postdoctoral certificate in advanced education in general dentistry.

### Licensing

Many state and national licensing and governing organizations will not grant a license, certification, registration or other similar document to practice a chosen profession if the applicant has been convicted of a felony, and in some cases a misdemeanor. Prospective applicants are encouraged to consult with their chosen professional governing or licensing organization for more detailed information before applying.

### Clinical Learning

Learning in clinical settings is an important aspect of programs of study in the College of Health Professions. Many health care facilities require information on students engaged in clinical learning opportunities, including, but not limited to: verification of name, address and social security number, personal health information, drug and alcohol testing, criminal background checks, verification of education, listing on any registered sex offender list, listing on the U.S. Office of Inspector General's Excluded Individual's list, and listing on the U.S. General Services Administration's Excluded Parties List. While the College of Health Professions will assist students in obtaining and gathering the information required by a health care facility, the cost of obtaining such information must be assumed by the student. What information will be required to permit the student to participate in a clinical setting learning experience will depend upon the respective health care facility. If a student is unable to fulfill the clinical experiences required by their program of study, the student may be unable to matriculate and/or graduate.

### Essential Functions/Technical Standards

Essential functions/technical standards define the attributes that are considered necessary for students to possess in order to complete their education and training, and subsequently enter clinical practice. These essential functions/technical standards are determined to be prerequisites for entrance to, continuation in, and graduation from a student's chosen discipline in the WSU College of Health Professions.

Students must possess aptitude, ability and skills in five areas:

1. Observation;
2. Communication;
3. Sensory and motor coordination and function;
4. Conceptualization, integration and quantification; and
5. Behavioral and social skills, ability and aptitude.

The essential functions/technical standards described by a student's chosen discipline are critically important to the student and must be autonomously performed by the student. It should be understood that these are essential function/technical standards for minimum competence in a student's discipline. Contact specific programs for detailed essential functions/technical standards. Reasonable accommodation of disability will be provided after the student notifies the department of the disability, and the disability has been documented by appropriate professionals.

<sup>1</sup> Link opens new window.

## School of Health Sciences

The School of Health Sciences offers graduate programs leading to the Master of Physician Assistant, Master of Arts in communication sciences and disorders, Master of Arts in aging studies, Master of Health Administration, Doctor of Audiology, Doctor of Philosophy in communication sciences and disorders, and Doctor of Physical Therapy degrees. Specific requirements for each degree are described under the appropriate listing.

### Courses in the School of Health Sciences

- Aging Studies (AGE) (p. 259)
- Communication Sciences and Disorders (CSD) (p. 314)
- Health Administration (HA) (p. 345)
- Health Professions (HP) (p. 350)
- Health Sciences (HS) (p. 353)
- Physical Therapy (PT) (p. 400)

- Physician Assistant (PA) (p. 386)
- Public Health Sciences (PHS) (p. 392)

## Communication Sciences and Disorders

### Degrees and Areas of Specialization

The department of communication sciences and disorders offers courses of study leading to the following graduate degrees:

- Master of Arts (MA),
- Doctor of Audiology (AuD), and
- Doctor of Philosophy (PhD).

Academic and clinical education are provided for students who wish to become professionally qualified to work with children and adults. Instructional areas include communication sciences, speech-language pathology, and clinical and rehabilitative audiology. A graduate program culminating in a master's degree is required for professional certification as a speech-language pathologist for work in the public schools, hospitals, clinics, rehabilitation centers or private practice. A Doctor of Audiology degree (AuD) is required to practice as an audiologist. With an undergraduate preprofessional major, students typically can complete the master's program in two years and the AuD in three years (including summers). The MA and AuD programs at WSU satisfy the minimum requirement for professional certification by the American Speech-Language-Hearing Association (ASHA) and for state licensure (in Kansas and beyond), and are accredited by the Council on Academic Accreditation (CAA) of ASHA. The PhD program prepares individuals to function professionally as independent researchers, teacher-scholars in an academic setting, or as program administrators.

### Minimum Grade Requirement

Admission to courses is possible with a minimum grade of *C* (2.000 points per credit hour) in each stated prerequisite or its judged equivalent, or with departmental consent, unless otherwise specified in the course description.

### Programs in Communication Sciences and Disorders

- PhD in Communication Sciences and Disorders (p. 178)
- AuD — Doctor of Audiology (p. 179)
- MA in Communication Sciences and Disorders (p. 181)

### Courses in Communication Sciences and Disorders

- Communication Sciences and Disorders (CSD) (p. 314)

## PhD in Communication Sciences and Disorders

The PhD program in communication sciences and disorders (CSD) has four tracks:

1. Bachelor's to PhD clinical track in speech-language pathology (SLP)
2. Bachelor's to PhD clinical track in audiology (Aud)
3. Bachelor's to PhD nonclinical track
4. SLP Master's/Doctor of Audiology (AuD) to PhD track

### Admission

To be considered for admission, please submit the following, as well as the supporting documents listed below under minimum requirements for each track.

1. Application for admission to the WSU Graduate School, including official transcripts from all institutions attended.

2. Three letters of recommendation.
3. Statement of purpose.
4. Professional resume.
5. Applicants whose native language is not English must submit official scores for either the TOEFL, the academic module of the IELTS examination, or the PTE-Academic examination, taken within the last two years. No waivers are allowed. Minimum acceptable scores to be considered for admission are: TOEFL - 100 internet-based with a score of 23 or higher on the speaking portion; IELTS - an overall band score of 7.5; PTE-Academic - a score of 73.

### Additional Minimum Requirements for Application to the PhD Graduate Program Tracks

There are different minimum requirements for the different tracks in the PhD program. Please review these requirements before applying to a specific track. Admission to all of the tracks in the CSD PhD program is restricted to students whose abilities, experience and previous coursework indicate that they are likely to be able to complete the doctoral program successfully. It is expected that the applicant will have acquired sufficient knowledge in communication sciences and disorders to be prepared for entry into an integrated program of advanced study and research. Applications are reviewed on a continuing basis.

1. **Bachelor's to PhD Clinical Track in Speech-Language Pathology (SLP) or Audiology**
  - a. Hold a bachelor's degree with a major in CSD from a regionally accredited institution or a recognized institution in another country whose requirements for the bachelor's degree are substantially equivalent to a U.S. bachelor's degree. If the student's major was not in CSD, prerequisite undergraduate coursework as required for entry into the SLP master's degree program (for SLP) or as determined by program faculty (for audiology) must be completed *prior to application* to the PhD program.
  - b. Minimum grade requirements: 3.500 overall GPA and 3.600 GPA in CSD major coursework.
  - c. Official scores for the Graduate Record Examination (GRE) taken within the last five years.
  - d. Following review of application documents, highly rated applicants will be offered an interview. Please note that this is an exceptionally competitive, low-acceptance program and not all applicants will be offered an interview.
  - e. Completion of interview with program faculty/clinical supervisors, which will include (but is not limited to) an assessment of academic potential, professional goals, motivation and commitment to the profession, and interpersonal and communication skills.
2. **Bachelor's to PhD Nonclinical Track**
  - a. Hold a bachelor's degree from a regionally accredited institution or a recognized institution in another country whose requirements for the bachelor's degree are substantially equivalent to a U.S. bachelor's degree.
  - b. Minimum grade requirements: 3.250 overall GPA and 3.500 GPA in the last 60 credit hours.
  - c. Official scores for the Graduate Record Examination (GRE) or Miller Analogies Test (MAT) taken within the last five years.
  - d. Following review of application documents, qualified applicants will be offered an interview. Not all applicants will be offered an interview.

- e. Completion of interview with program faculty/clinical supervisors, which will include (but is not limited to) an assessment of academic potential, professional goals, motivation and commitment to the profession, and interpersonal and communication skills.
3. **SLP Master's/Doctor of Audiology (AuD) to PhD Track**
- a. Hold a master's degree in SLP or Doctor of Audiology degree from a CAA accredited program.
  - b. Minimum grade requirements: 3.250 overall GPA and 3.500 GPA in the awarded graduate degree program.
  - c. Official scores for the Graduate Record Examination (GRE) or Miller Analogies Test (MAT) taken within the last five years.
  - d. Following review of application documents, qualified applicants will be offered an interview. Not all applicants will be offered an interview.
  - e. Completion of interview with program faculty/clinical supervisors, which will include (but is not limited to) an assessment of academic potential, professional goals, motivation and commitment to the profession, and interpersonal and communication skills.

<sup>1</sup> Please note: This is an exceptionally competitive, low-acceptance program.

### Program Requirements

Although some program requirements are common to all PhD tracks, each track also has specific program requirements that are detailed below.

#### Program Requirements for ALL PhD Tracks

All tracks require coursework and practica designed to build knowledge and skills as an effective researcher in CSD (21 credit hours). All tracks also include coursework and practica in university teaching (4 credit hours) and CSD foundational modules (5 credit hours), plus a minimum of 12 credit hours of dissertation research.

#### Bachelor's to PhD Clinical Track in Speech-Language Pathology (SLP)

This track requires 73 credit hours in addition to the 42 credit hours for all PhD tracks, for a total of 115 credit hours beyond the bachelor's degree. Students in this track complete all requirements (both academic and clinical) for the Master of Arts (MA) in speech-language pathology and may be awarded the MA along the way to the PhD degree.

Award of the MA degree occurs once the student has completed all academic and clinical requirements for that degree, as described in the Graduate Catalog. Students in this track also typically complete their Clinical Fellowship (CF) following the awarding of the MA degree (See American Speech-Language-Hearing Association for specific requirements for the CF). In addition, students complete 12 credit hours of elective coursework (minimum of 9 credit hours at the 900 level) designed to deepen their knowledge and skills in their specific area(s) of specialization.

#### Bachelor's to PhD Clinical Track in Audiology (AuD)

This track requires 101 credit hours in addition to the 42 credit hours for all PhD tracks, for a total of 143 credit hours beyond the bachelor's degree. Students in this track complete all requirements (both academic and clinical) for the Doctor of Audiology degree (excluding PHS 804), and may be awarded the AuD along the way to the PhD degree. Award of the AuD degree occurs once the student has completed all academic and clinical requirements for that degree, as described in the Graduate Catalog. In addition, students complete 12 credit hours of elective coursework (minimum of 9 credit hours at the 900 level) designed to deepen their knowledge and skills in their specific area(s) of specialization.

#### Bachelor's to PhD Nondclinical Track

This track requires 36 credit hours in addition to the 42 credit hours for all PhD tracks, for a total of 78 credit hours beyond the bachelor's degree. Students in this track complete 12 credit hours of foundational courses in communication sciences and disorders (to be determined by their doctoral committee) as well as 24 credit hours of elective coursework (minimum of 9 credit hours at the 900-level) designed to deepen their knowledge and skills in their specific area(s) of specialization.

#### SLP Master's/Doctor of Audiology (AuD) to PhD Track

This track requires 18 credit hours in addition to the 42 credit hours for all PhD tracks, for a total of 60 credit hours beyond the Master's in SLP or Doctor of Audiology degrees. Students in this track complete 18 credit hours of elective coursework (minimum of 9 credit hours at the 900 level) designed to deepen their knowledge and skills in their specific area(s) of specialization.

**Note:** For all tracks, a doctoral student becomes a *candidate for the degree* after passing the qualifying examination, which typically is taken during the semester the plan of study requirements (coursework) are completed (exclusive of dissertation hours). Doctoral candidates enroll in at least 2 dissertation credit hours each semester (including the semester of graduation). The final requirements for the PhD are the completion of original research, the dissertation and an oral defense.

#### Applied Learning

Students in the PhD in communication sciences and disorders program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by the completion of the required dissertation.

## AuD - Doctor of Audiology

### Admission

Minimum requirements for application to the AuD graduate program:

1. Hold a bachelor's degree from a regionally accredited institution or a recognized institution in another country whose requirements for the bachelor's degree are substantially equivalent to a U.S. bachelor's degree.
2. Minimum grade requirements: 2.750 overall GPA and 3.000 GPA in the last 60 semester credit hours. Receive a grade that generates at least 2.000 credit points per credit hour in all prerequisite courses.
3. Three letters of recommendation.
4. Professional resume.
5. Official scores for the Graduate Record Examination (GRE) or Miller Analogies Test (MAT) taken within the last five years.
6. Applicants whose native language is not English must submit official scores for either the TOEFL, the academic module of the IELTS examination, or the PTE-Academic examination, taken within the last two years. No waivers are allowed. Minimum acceptable scores to be considered for admission are: TOEFL - 100 internet-based with a score of 23 or higher on the speaking portion; IELTS - an overall band score of 7.5; PTE-Academic - a score of 73.
7. Completion of interview with program faculty/clinical supervisors, which will include (but not be limited to) an assessment of academic potential, motivation and commitment to the profession, and interpersonal and communication skills. Not all applicants will be offered an interview.

To be considered for admission, the following steps must be completed by the published deadline:

1. Online application for admission to the WSU Graduate School, including upload of transcripts from all institutions attended.
2. Application to the Communication Sciences and Disorders Centralized Application Service (CSDCAS) including all transcripts, letters of recommendation and supporting documents.

Notes:

1. Application to the AuD graduate program is competitive, which means there are more applications than positions offered each year.
2. The ability to meet the essential functions for students in the audiology program is required (contact the program for more information).
3. Refer to the CSD department's website (<http://wichita.edu/csd/>)<sup>1</sup> for complete information.

Admission to the AuD program is considered for students who have completed an undergraduate major in the area of speech, language and hearing disorders. Selected undergraduate or closely allied courses may be considered. Additionally, students with a degree from another field will be considered for admission with the understanding that prerequisite coursework will be required during their first year of the program. Admission is for summer session only. The deadline to submit a completed CSDCAS application is February 1 (11:59 p.m. EST). The Graduate School application, application fee and transcripts are due by February 1.

Course	Title	Hours
<b>Tool Requirements</b>		
(Tool subjects may be taken at the undergraduate or graduate level, but are not counted toward the degree.)		
Research Methods (ex. PSY 311, CESP 701, HP 800)		3
CSD 270	American Sign Language I	3
CSD 304	Early Language Development	3
CSD 504	Aural Rehabilitation	3
Total Credit Hours		12

<sup>1</sup> Link opens new window.

### Program Requirements

The Doctor of Audiology (AuD) program requires a minimum of 89 credit hours of didactic and clinical courses OR 92 credit hours if Research Project Option 2 is selected. In addition, 9 credit hours of prerequisite coursework in American sign language (3 credit hours), normal development of speech and language (3 credit hours), and aural rehabilitation (3 credit hours) are required. All students must enroll in a clinical practicum course each semester. All students must complete HIPAA training annually.

A plan of study must be filed within the first year of the program. Students must complete 60 percent of total credit hours at the 700 level or above and the majority of total credit hours (50 percent plus one hour) must be 800 level or above. Transfer hours cannot be used to satisfy the course level requirements stated above unless transfer hours are of appropriate level from Kansas Board of Regents institutions. Workshop hours may not be used to satisfy the course level requirements. Transfer credit policies are listed in the appropriate section of the graduate catalog.

Course	Title	Hours
<b>Didactic Coursework</b>		
CSD 705	Counseling in Communication Sciences and Disorders	3
CSD 803	Intro to Psychoacoustics	3
CSD 804	Clinical Audiology I	3
CSD 805	Clinical Audiology II	4
CSD 806	Advanced Anatomy and Physiology of the Auditory System	3
CSD 807	Acoustics and Instrumentation	3
CSD 808	Otoacoustic Emissions	2
CSD 832A	Critical Thinking in Clinical Practice I	3
CSD 851	Medical Audiology	3
CSD 854	Hearing Conservation	3
CSD 855	Pediatric and Educational Audiology	3
CSD 860	Amplification I	3
CSD 861	Amplification II	3
CSD 863	Professional Seminar in Audiology	3
CSD 866	Auditory Evoked Potentials	3
CSD 868	Diagnosis and Management of Persons with Balance Disorders	3
CSD 870	Current Topics in Amplification	2
CSD 871	Current Topics in Auditory Disorders	2
HP 801	Interprofessional Evidence-Based Practice	1
Business Elective (departmentally approved)		3
Research Methods/Statistics Elective (departmentally approved)		3
CSD 940G	Scholarly Integrity	1
<b>Research Project</b>		
Select one of the following options:		3-6
Research Project Option 1:		
CSD 891	Nonthesis Research (2 credit hours)	
CSD 892	Presentation of Research (1 credit hour)	
Research Project Option 2:		
CSD 891	Nonthesis Research (5 credit hours)	
CSD 892	Presentation of Research (1 credit hour)	
<b>Clinical Practicum</b>		
The following is repeatable six semesters for a maximum of 8 credit hours:		8
CSD 886	Clinical Practicum in Audiology	
Take the following for 18 credit hours:		18
CSD 997	Audiology Residency	
Total Credit Hours		89-92

Advancement to candidacy is contingent upon:

1. Satisfactory performance on all didactic and clinical evaluative measures throughout years one and two of the student's AuD program as determined by program faculty, clinical educators and externship supervisors, with at least a 3.250 GPA;

2. Completion of the mentored research project with a subsequent presentation and evaluation, as reviewed by program faculty; and
3. Successful completion of comprehensive, competency-based examinations near the conclusion of years one and two. Students will be given two attempts each year to complete the comprehensive examination requirement.

Advancement to candidacy allows students to enroll in the final program requirement, the full-time residency.

Further, students must enroll in CSD 997, in consecutive semesters during the final year of the program of study to complete the necessary clinical hours for graduation. The residency involves a full-time supervised experience in a hospital, clinical or other audiology practice environment. To ensure that the placement will provide candidates the best environment for that culminating experience, the placement of the candidate may or may not be in the metropolitan area of Wichita. Although WSU has a number of sites established for the residency year, the candidate may independently seek placement for that experience. However, the final decision as to the suitability and location will be approved by the program faculty. A competency-based evaluation of the student's performance will be made at regular intervals throughout the clinical experience.

Before graduation, students must have achieved sufficient clinical clock hours to satisfy the requirements of the American Speech-Language-Hearing Association (ASHA) for the Certificate of Clinical Competence (CCC-A) and must have demonstrated clinical competency in completing those hours as determined by both in-house and external clinical supervisors. Students must also have demonstrated knowledge and skills learning outcomes in compliance with ASHA standards for certification. A passing score on the Praxis exam as determined by the state of Kansas is required prior to graduation. An alternative assessment (e.g., written comprehensive examination) will be implemented if a student has not passed the Praxis exam for a second time prior to meeting all other requirements for candidacy and graduation.

Students enrolled in the department's clinical practicum courses are required to provide proof of medical clearance (see department for details) prior to the start of the course and to renew annually. Semester clinic fees will also apply. The cost of professional liability insurance coverage (not less than \$1 million per single claim/\$3 million aggregate per year) and general liability insurance coverage (not less than \$1 million per single claim/\$3 million aggregate per year) is included in the program fee. Students are required to obtain a criminal background check at their own expense as part of the clinical placements. Students should consult the beginning of the College of Health Professions section of the catalog for additional requirements which may be needed to participate in clinical settings. In addition, applications for external practicum placements must be made one year in advance and are subject to departmental approval.

### **Applied Learning**

Students in the Doctor of Audiology (AuD) program are required to complete both an applied learning experience and a research experience to graduate from the program. The applied learning experience requirement can be met by successfully completing clinical practicums (CSD 886) and audiology residencies (CSD 997). The research experience requirement can be met by successfully completing the capstone research project (two or five semesters of CSD 891 and one semester of CSD 892).

## **MA in Communication Sciences and Disorders**

### **Admission**

Minimum requirements for application to the MA-CSD graduate program:

1. Hold a bachelor's degree from a regionally accredited institution or a recognized institution in another country whose requirements for the bachelor's degree are substantially equivalent to a U.S. bachelor's degree.
2. Minimum grade requirements: 2.750 overall GPA and 3.000 GPA in the last 60 semester credit hours. Receive a grade that generates at least 2.000 credit points per credit hour in all prerequisite courses.
3. Three letters of recommendation (applicants can submit more than three).
4. Professional resume.
5. Official scores for the Graduate Record Examination (GRE) or Miller Analogies Test (MAT) taken within the last five years. The GRE is the preferred standardized test.
6. Applicants whose native language is not English must submit official scores for either the TOEFL, the academic module of the IELTS examination, or the PTE-Academic examination, taken within the last two years. No waivers are allowed. Minimum acceptable scores to be considered for admission are: TOEFL - 100 internet-based with a score of 23 or higher on the speaking portion; IELTS - an overall band score of 7.5; PTE-Academic - a score of 73.

To be considered for admission, the following steps must be completed by the published deadline:

1. Online application for admission to the WSU Graduate School, including upload of transcripts from all institutions attended. Applicants who received a BA or BS from Wichita State University only need to submit an unofficial transcript.
2. Application to the Communication Sciences and Disorders Centralized Application Service (CSDCAS), including all transcripts, letters of recommendation and supporting documents.

### *Notes:*

1. *Application to the MA-CSD graduate program is extremely competitive, which means there are more applications submitted than positions offered each year.*
2. *The ability to meet the essential functions for students in the clinical speech-language pathology program is required (contact the program for more information).*
3. *Refer to the CSD department's website (<http://wichita.edu/csd/>)<sup>1</sup> for complete information.*

Admission to the MA-CSD program is considered for students who have completed an undergraduate major in the area of speech, language and hearing disorders. Selected undergraduate or closely allied courses may be considered. Additionally, students with a degree from another field will be considered for admission after completion of prerequisite courses. Admission is for fall semester only. The deadline to submit a completed CSDCAS application is February 1 (11:59 p.m. CST). The Graduate School application, application fee and transcripts are also due by February 1.

Undergraduate students may request early admission to the MA-CSD program under the senior rule policy if they:

1. Meet the requirements for senior rule status as described in the Graduate School policies section of the Graduate Catalog;
2. Meet GPA requirements for senior rule status and have a 3.700 GPA in the last 60 credit hours;
3. Provide three letters of recommendation from CSD faculty or clinical educators. Two letters from CSD faculty and one letter from a faculty member in a related academic area is acceptable; and
4. Have a minimum MAT score of 415 or a minimum GRE score of 157 Verbal, 159 Quantitative, and 4.5 Analytical Writing.

Consult the department for an application packet. Early admission is contingent on faculty review of all application materials.

Course	Title	Hours
<b>Tool Requirements</b>		
(Tool subjects may be taken at the undergraduate or graduate level, but are not counted toward the degree.)		
Research Methods (ex. PSY 311, CESP 701, HP 800)		3
Total Credit Hours		3

Applicants admitted to the MA-CSD program for the fall semester of each year will be required to complete a criminal background check, medical clearance, research training via the Collaborative Institutional Training Initiative (CITI Program), and additional requirements prior to beginning the fall semester. Full details of these requirements will be sent to applicants following admission to the program.

<sup>1</sup> Link opens new window.

### Program Requirements

The Master of Arts (MA) in communication sciences and disorders may be earned with an emphasis in speech-language pathology. This program requires students to complete 61 credit hours (thesis or nonthesis track) across five or six semesters. Prospective students with an undergraduate degree in another field should review the department website for details on prerequisite coursework ([1] undergraduate CSD courses, [2] ASHA-required foundational courses, namely, social/behavioral sciences, biological sciences, statistics, and a physical sciences course taught by a department of physics or a department of chemistry, and [3] research methods). Please consult a CSD advisor prior to applying to the program.

A plan of study must be filed within the first year of the program. Transfer credit policies are listed in the appropriate section of the Graduate Catalog.

Course	Title	Hours
<b>Didactic Coursework</b>		
CSD 705	Counseling in Communication Sciences and Disorders	3
CSD 710	Autism Spectrum Disorder	3
CSD 809	Language and Literacy for Young Children: Assessment and Intervention	3
CSD 810	Motor Speech Disorders	2
CSD 811	Dysphagia	2
CSD 811L	Dysphagia Lab	2
CSD 812	Aphasia	3
CSD 814	Speech-Sound Disorders	2
CSD 815	Augmentative and Alternative Communication	2

CSD 816	Language and Literacy for School-Age and Adolescents	3
CSD 817	Voice Disorders	3
CSD 818	Fluency Disorders	3
CSD 819	Cognitive Communication Disorders	2
CSD 832A	Critical Thinking in Clinical Practice I	3
CSD 832B	Critical Thinking in Clinical Practice II	2
CSD 832C	Critical Thinking in Clinical Practice III	2
CSD 836	Clinical and Research Writing	1
CSD 837	Clinical Assessment of Speech-Language Disorders	1
CSD 838	Supervisory Process in Speech-Language Pathology and Audiology	1
HP 801	Interprofessional Evidence-Based Practice	1
<b>Nonthesis/Thesis Options (consult with a CSD advisor)</b>		
Select one of the following options:		3
<b>Nonthesis Option (3 credit hours total):</b>		
CSD 891	Nonthesis Research	
<b>Thesis Option (3 credit hours total):</b>		
CSD 895	Thesis Research	
CSD 899	Thesis	
<b>Clinical Practicum (14 credit hours total)</b>		
CSD 821	Educational Settings Practicum	3
The following course is repeatable for a maximum of 7 credit hours (1-2 credit hours, 4 semesters):		
CSD 822	General Clinic Practicum	7
CSD 823	Medical Settings Practicum	3
CSD 831	Auditory Assessment — SLP Practicum	1
Total Credit Hours		61

Students in the MA-CSD program must successfully complete HIPAA training annually. Please refer to departmental policies for details.

Successful completion of the program requires the following:

1. Satisfactory performance on all didactic and clinical evaluative measures as determined by program faculty, clinical educators and externship supervisors with at least a 3.000 GPA;
2. Satisfactory performance in completing a mentored research project (i.e., nonthesis project or thesis); and
3. A passing score on the PRAXIS exam as determined by the American Speech-Language-Hearing Association (ASHA) and the state of Kansas (i.e., 162).

An alternative assessment (e.g., an in-house written comprehensive examination) will be implemented if a student has not passed the PRAXIS exam for a third time prior to meeting all other requirements for graduation.

Further, students must enroll in a clinical practicum course every semester during the master's program to complete the necessary clinical hours for graduation via supervised practicums at the WSU Evelyn Hendren Cassat Speech-Language-Hearing Clinic, hospital, school or other practice environment. To ensure that the placement will provide candidates the best clinical opportunities, the placement of the candidate may or may not be in the metropolitan area of Wichita.

Although WSU has a number of sites established, the candidate may also independently seek placement for that experience. However, the final decision as to the suitability and location will be approved by the program faculty. A competency-based evaluation of the student's performance will be made at regular intervals throughout the clinical experience.

Before graduation, students must have successfully completed a minimum of 400 clinical clock hours (at least 25 observation hours and at least 375 clinical hours) to satisfy requirements of the American Speech-Language-Hearing Association (ASHA) for the Certificate of Clinical Competence (CCC-SLP) and must have demonstrated clinical competency in completing those hours as determined by both in-house and external clinical supervisors. Students must also have demonstrated knowledge and skills learning outcomes in compliance with ASHA standards for certification.

Students enrolled in the department's clinical practicum courses are required to provide proof of medical clearance (see department for details) prior to the start of the course and to renew annually. Semester clinic fees will also apply. The cost of professional liability insurance coverage (not less than \$1 million per single claim/\$3 million aggregate per year) and general liability insurance coverage (not less than \$1 million per single claim/\$3 million aggregate per year) is included in the program fee. Students are required to obtain a criminal background check at their own expense as part of the clinical placements. Students should consult the beginning of the College of Health Professions section of the catalog for additional requirements which may be needed to participate in clinical settings. In addition, applications for external practicum placements must be made one year in advance and are subject to departmental approval.

### Applied Learning

Students in the Master of Arts program are required to complete both an applied learning experience and a research experience to graduate from the program. The applied learning experience requirement can be met by successfully completing general and external clinical practicums, specifically CSD 821, CSD 822, CSD 823, and CSD 831 (CSD 824 is optional). The research experience requirement can be met by successfully completing the nonthesis option (three semesters of CSD 891) or the thesis option (two semesters of CSD 895 and one semester of CSD 899).

## Physical Therapy

### Doctor of Physical Therapy

The physical therapy program prepares entry-level physical therapists. Graduates are prepared to evaluate neuromuscular, musculoskeletal, sensorimotor and related functions to determine the degree of muscle strength, motor development, motion, respiratory ventilation or peripheral circulatory efficiency of individuals. The physical therapist plans and implements appropriate interventions for clients to improve functional abilities and overall quality of life. Graduates are prepared to work in and across a variety of settings. Students enter the program in the summer semester only.

Please contact the physical therapy graduate program office at 316-978-5770 for the most recent information regarding the current curriculum plan.

### Programs in Physical Therapy

- Doctor of Physical Therapy (p. 183)

### Courses in Physical Therapy

- Physical Therapy (PT) (p. 400)

## Doctor of Physical Therapy

### Admission

1. Bachelor's degree from regionally accredited institution;
2. Minimum grade requirements: 3.000 GPA in the last 60 semester credit hours; 3.000 GPA in prerequisite courses; and 3.000 overall GPA. Receive a grade that generates at least 2.000 credit points per credit hour in all prerequisite courses;
3. Prerequisite courses must be completed by the end of the spring semester prior to the beginning of summer courses in the curriculum:
  - Biology — one semester of introductory biology with a laboratory, or microbiology with a laboratory, or an upper level biology course with a laboratory;
  - Anatomy and physiology — minimum of 5 credit hours with a laboratory;
  - College chemistry — two semesters with laboratories, or organic chemistry with laboratories;
  - College physics — two semesters with laboratories;
  - English composition — two semesters;
  - Exercise physiology — one semester;
  - Medical terminology — one semester hour minimum;
  - Speech or public speaking — one semester;
  - Mathematics — college trigonometry or equivalent;
  - Statistics — one semester;
  - Social sciences — psychology, one introductory course and one advanced course;
4. Math/science prerequisite coursework can be no more than six years old at the time of application to the DPT program. Coursework more than six years old will need to be repeated for a letter grade;
5. Physical therapy clinical observation of 20 hours in one or more physical therapy departments; and
6. International students must submit either an official TOEFL minimum score of 100 (internet-based), or IELTS with an minimum overall band score of 7.5, or a PTE-Academic with a minimum score of 73.

To be reviewed for admission, applicants must:

1. Seek an application packet from the Graduate School, and review application process at the Physical Therapist Centralized Application Service (PTCAS) (<http://www.ptcas.org>)<sup>1</sup>;
2. Submit the designated application for admission and supporting transcripts to the Graduate School; and
3. Submit the designated application to PTCAS by the published deadline.

*Any applicant who has completed entry-level physical therapist education, regardless of degree or location of program, will **not** be considered for admission to the entry-level DPT program at Wichita State University.*

Complete applications are reviewed by the physical therapy department in a timely manner. Applicants will be notified of their admission status by the Graduate School. Once an applicant has been admitted, he or she will be asked to submit a \$500 nonrefundable tuition deposit to reserve a space for summer admission. Once the student enrolls, these funds will be credited toward the payment of tuition.

Students are advised to contact the department for any changes in the program course requirements or in prerequisite requirements.

Information is also available on the department website (<http://wichita.edu/pt/>)<sup>1</sup>.

<sup>1</sup>Link opens new window.

### Program Requirements

The program requires full-time study for a period of 36 consecutive months. Students enter the program in the summer semester only. The student must maintain a 3.000 GPA as required by the Graduate School and achieve a grade that generates at least 2.000 credit points per credit hour in each of the following courses:

*Please contact the physical therapy graduate program office for the most recent information regarding curriculum.*

<b>First Year</b>		
<b>Summer Semester</b>		<b>Credit Hours</b>
PT 700	Pathophysiology for PT	3
PT 708	Introduction to Professional Practice I	2
PT 755	Clinical Pharmacology for Physical Therapists	2
PT 751	Foundations of Research	2
Credit Hours		9
<b>Fall Semester</b>		
PT 725	Anatomy for Physical Therapists	6
PT 731	Clinical Kinesiology	3
PT 736	Physical Agents	3
PT 772	Foundations of Clinical Skills	2
PT 741	Clinical Practicum and Seminar I	2
PT 771	Critical Inquiry I	2
Credit Hours		18
<b>Spring Semester</b>		
PT 761	Clinical Practicum and Seminar II	2
PT 770	Musculoskeletal Clinical Medicine	2
PT 773	Neuroscience I	2
PT 774	Neuromuscular Interventions I	2
PT 781	Foundations of Musculoskeletal Examination and Intervention	3
PT 724	Culturally-Informed Care	3
PT 709	Foundations of Therapeutic Exercise	3
Credit Hours		17
<b>Second Year</b>		
<b>Summer Semester</b>		<b>Credit Hours</b>
PT 852	Clinical Education I	8
PT 821	Professional Practice I	2
PT 848	Life Span of the Adult	2
Credit Hours		12
<b>Fall Semester</b>		
PT 831	Musculoskeletal Management of the Upper Quarter	3
PT 851	Critical Inquiry II	2
PT 853	Neuroscience II	2
PT 854	Neuromuscular Interventions II	2
PT 858	Prosthetics & Orthotics	2
PT 859	Integumentary Conditions and Acute Care	2
PT 891	Musculoskeletal Management of the Cervical/Thoracic Spine and TMJ	2
Credit Hours		15
<b>Spring Semester</b>		
PT 861	Professional Practice II	2
PT 871	Critical Inquiry III	2
PT 874	Neuromuscular Interventions III	2

PT 877	Clinical Knowledge and Practice in Cardiovascular and Pulmonary Conditions	3
PT 881	Musculoskeletal Management of the Lower Quarter	3
PT 892	Musculoskeletal Management of the Lumbar Spine and Pelvis	2
PT 898	Life Span of the Infant & Child	2
PT 899	Principles of Education for Physical Therapists	2
Credit Hours		18
<b>Third Year</b>		
<b>Summer Semester</b>		<b>Credit Hours</b>
PT 953	Clinical Education II	10
PT 975	Diagnostic Imaging for the Physical Therapist	1
Credit Hours		11
<b>Fall Semester</b>		
PT 954	Clinical Education III	9
Electives: Students may take up to 3-4 credit hours		3
Credit Hours		12
<b>Spring Semester</b>		
PT 955	Clinical Education IV	9
PT 990	Clinical Conference I	1
Credit Hours		10
Total Credit Hours		122

### Elective(s)

Students are required to take 3 credit hours of elective coursework. Additional electives are optional with departmental consent. The courses include:

Course	Title	Hours
PT 790	Selected Topics in Physical Therapy	1-4
PT 799	Experimental Course	1-4
PT 840	Directed Study	1-3
PT 934	PT Advanced Strength and Conditioning in the Athletic Population	2
PT 943	Practice Management	2
PT 951	Evidence-Based Practice	1
PT 980	Licensure Exam Review	1

### Special Requirements

Students will be required to purchase uniforms and other clinical apparel, professional and general liability insurance, health insurance coverage, and specified immunizations, as well as submit evidence of an annual physical examination while in the program. Students must also be certified in cardiopulmonary resuscitation (CPR) prior to entering the program, and must maintain that certification during their enrollment in the curriculum.

Students are expected to provide their own transportation to and from the health care facilities used for clinical experiences. During clinical assignments outside Wichita, students may be required to pay all living and travel expenses.

Students are referred to the Department of Physical Therapy Student Handbook for more details on special departmental policies and procedures.

### Applied Learning

Students in the Doctor of Physical Therapy program are required to complete an applied learning or research experience to graduate from

the program. The requirement can be met with successful completion of PT 751, PT 771, PT 851, PT 871, PT 852, PT 953, PT 954 and PT 990.

## Physician Assistant

### Master of Physician Assistant

The graduate program in physician assistant studies, located in the department of physician assistant within the College of Health Professions at Wichita State University, is the only one of its kind in Kansas. The program prepares graduates to practice medicine in collaboration with a licensed physician. The functions of a physician assistant include performing diagnostic, therapeutic, preventative and health maintenance services in any setting in which the physician renders care, in order to maximize patient-centered care using a team-based approach.

The WSU department of physician assistant, accredited by the Accreditation Review Commission on the Education of Physician Assistants (ARC-PA), offers a 26-month (full-time, lock-step) graduate course of study which leads to a professional Master of Physician Assistant degree. The program is equally divided into two parts: a didactic phase and a clinical/research phase. One class is admitted each summer.

### Professional Curriculum

The professional curriculum is divided into two phases: a 14-month didactic phase and a 12-month clinical/research phase. The didactic phase includes graduate coursework in the basic sciences (anatomy, pharmacology, pathophysiology), clinical medicine, research methods, epidemiology, behavioral medicine, ethics, preventive medicine, social and legal issues, clinical and diagnostic skills.

During the clinical/research phase of the program students complete 9 clinical rotations. Focus areas include: family medicine and primary care, pediatrics, prenatal care and women's health, emergency medicine and acute care, general surgery, behavioral health and internal medicine. The WSU PA program enjoys the support of preceptors throughout Kansas. In keeping with the broad range of clinical activities, students have the opportunity to experience a wide variety of clinical rotation sites including at least two rotations in a rural location site. All students should expect to spend several months in rural areas of Kansas. Students are expected to pay for transportation, room and board when traveling to clinical rotation sites.

### Programs in Physician Assistant

- Master of Physician Assistant (p. 185)

### Courses in Physician Assistant

- Physician Assistant (PA) (p. 386)

## Master of Physician Assistant

### Admission

Minimum requirements for application to the PA program:

1. A bachelor's degree from a regionally accredited U.S. college or university is required prior to matriculation with additional prerequisite coursework below if not included in the bachelor's degree. Core science prerequisite coursework more than 10 years old is subject to departmental review and in most cases applicants will be required to repeat core science prerequisite courses completed more than 10 years ago. Acceptance of foreign bachelor's degrees is decided on an individual basis after evaluation by a transcript evaluation service and the WSU Graduate School.
    - a. *Core Science Prerequisites (must be complete at the time Central Application Service for Physician Assistant [CASPA] application is submitted)*
      - Chemistry (minimum 12 credit hours with lab). Recommended sequence—chemistry I, chemistry II, biochemistry;
      - Biology including microbiology (minimum 9 credit hours with lab). Recommended sequence biology I, biology II, microbiology; and
      - Human anatomy and human physiology with lab (minimum 5 credit hours).
      - **Please Note:** Core Science Prerequisites will change for the 2022-2023 admission cycle and will include the following: three semesters of chemistry to include two semesters of chemistry with lab (excluding introductory chemistry) and one semester of either organic chemistry or biochemistry. One semester of general biology, one semester of microbiology with lab, and one semester of genetics. In addition, 5 credit hours of human anatomy and physiology with lab are also required.
  - b. *Prerequisites (other)*
    - Statistics (minimum 3 credit hours);
    - Medical terminology; and
    - General psychology (minimum 3 credit hours) or higher level psychology.
  - c. *Recommended Courses*

The following courses are *not* required for admission, but are recommended. These and courses like these provide valuable background to prepare students for admission to the program and allow applicants to demonstrate their ability to succeed in rigorous science/medical courses similar to what they will encounter in the program.

    - Pharmacology - strongly recommended;
    - Genetics - strongly recommended;
    - Pathophysiology - strongly recommended;
    - Biochemistry - strongly recommended;
    - Organic chemistry - strongly recommended;
    - Additional courses in anatomy and physiology beyond the required 5 credit hours - strongly recommended;
    - Human nutrition;
    - Epidemiology;
    - Gerontology;
    - Medical ethics;
    - Health care policy; and/or
    - Abnormal psychology.
2. Ideally, candidates should have a bachelor's degree and all prerequisite coursework completed at the time of application. Those who have not completed all coursework can apply if outstanding coursework is within two semesters of completion, however *all* core science prerequisites must be completed at the time of application and only graded components will be counted toward prerequisite coursework. (Other prerequisites can be outstanding at the time of application.) Applicants whose native (first) language is not English must submit their TOEFL, IELTS or PTE-Academic score by September 1. If no TOEFL, IELTS or PTE-Academic score is received by September 1, the applicant will not be considered for admission. The bachelor's degree and prerequisite coursework in progress must be completed before starting the program. Successful completion of degree and coursework must be verified if accepted and before acceptance is finalized. All prerequisite coursework must be completed with a C- grade or higher.
3. GPA requirements (on a 4.000 scale) apply to both the degree and core science prerequisites: 3.000.

4. Demonstrated commitment to diversity, leadership and service.
5. Completion of on-site interview with program faculty, which will include (but not be limited to) an assessment of academic potential, motivation and commitment to the PA profession, and interpersonal and communication skills. Not all applicants will be offered an interview.
6. Health care experience (direct patient care) is strongly preferred, but not required.
7. To be considered for the PA program the following three steps must be completed:
  - a. Primary CASPA (national) application, including all transcripts and letters of recommendation (deadline Sept. 1);
  - b. University Graduate School application, including unofficial transcripts from all institutions attended (deadline Sept. 1). Official transcripts will be required for students offered admission into the PA program; and
  - c. Supplemental application — a supplemental application is emailed to the applicant to be returned by the assigned deadline.

*Notes:*

1. *The ability to meet the academic and technical standards for physician assistant students is required (contact the program for more information).*
2. *Application to the program is competitive, which means there are more applications than positions offered each year.*
3. *Refer to the department's website (<http://wichita.edu/pa/>)<sup>1</sup> for complete information.*
4. *Due to the lock-step nature of the curriculum, senior rule admission is not applicable to the physician assistant program.*
5. *Applicants with foreign coursework must apply to the WSU Graduate School and be determined admissible prior to submitting their CASPA application.*

<sup>1</sup> Link opens new window.

### Financial Assistance

Many MPA students seek the assistance of WSU's Office of Financial Aid in applying for loans and grants available for graduate students. In addition, the College of Health Professions awards several fellowships each academic year, and the department of physician assistant has several fellowships available to MPA students once enrolled in the program. Furthermore, there are several national scholarship programs supported by the federal government and national PA associations. Information about such programs is distributed to students during interviews.

### Special Requirements

Students will be required to purchase lab coats, medical equipment, professional and general liability insurance, and health insurance coverage. Each year while enrolled in the program, students are required to have an annual health history and physical examination (with documentation of appropriate immunizations and screening tests). Students, at their own expense, must pass a background check prior to entering the program. Clinical sites may also require students to undergo random serum or urine drug testing, as well as subsequent background checks, at the expense of the student.

Students are expected to provide their own transportation to and from the health care facilities used for clinical experiences (located throughout Kansas). During clinical assignments outside Wichita, students may be required to pay all living expenses.

Students are referred to the department of physician assistant student handbooks for more details on special departmental policies and procedures.

### Program Requirements

The following courses are required of all students for program completion:

Summer Semester		Credit Hours
PA 789	Clinical Anatomy	5
PA 789L	Clinical Anatomy Lab	1
PA 717	Professional Issues	1
		Credit Hours
		7
Fall Semester		
PA 700	Clinical Practice I	3
PA 700L	Clinical Practice I Lab	1
PA 710	Advanced Pharmacotherapy I	3
PA 716	Clinical Laboratory	2
PA 718	Clinical Medicine Cardiology	3
PA 727	Preventive Medicine	2
PA 729	Clinical Behavioral Medicine	2
PA 731	Clinical Medicine Dermatology	2
PA 732	Clinical Medicine EENT	2
PA 800	Research Methods for Evidence-Based Practice	2
		Credit Hours
		22
Spring Semester		
PA 711	Advanced Pharmacotherapy II	3
PA 719	Clinical Medicine Pulmonology	3
PA 722	Clinical Medicine Gastroenterology	3
PA 724	Clinical Medicine OB/GYN	3
PA 728	Clinical Medicine Endocrinology	2
PA 741	Clinical Medicine of Bone and Joint Disease	1
PA 734	Clinical Medicine Neurology	2
PA 736	Clinical Practice II	2
PA 736L	Clinical Practice II Lab	1
HP 801	Interprofessional Evidence-Based Practice	1
		Credit Hours
		21
Second Year		
Summer Semester		
PA 742	Clinical Medicine Orthopedics	1
PA 721	Clinical Medicine Genitourinary/Renal	2
PA 801	Clinical Rotation - Family Medicine	4
		Credit Hours
		7
Fall Semester		
PA 802	Clinical Rotation - Pediatric Medicine	4
PA 803	Clinical Rotation - Women's Health	4
PA 804	Clinical Rotation - Internal Medicine	4
PA 896	Directed Study Research I	2
		Credit Hours
		14
Spring Semester		
PA 805	Clinical Rotation - Behavioral Health	4
PA 806	Clinical Rotation - Surgery	4
PA 807	Clinical Rotation - Emergency Medicine	4
PA 897	Directed Study Research II	2
PA 850	Experiential Learning in Professionalism, Service, Research and Interprofessional Collaboration	1
		Credit Hours
		15

Third Year		
Summer Semester		
PA 808	Clinical Rotation - Elective I	4
PA 809	Clinical Rotation - Elective II	3
Credit Hours		7
Total Credit Hours		93

### Applied Learning

Students in the Master of Physician Assistant program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met with successful completion of PA 801, PA 802, PA 803, PA 804, PA 805, PA 806, PA 807, PA 808 and PA 809.

## Public Health Sciences

The department of public health sciences offers a Master of Arts in aging studies and Master of Health Administration. Graduate certificates in aging studies, health administration and public health are also available for degree and nondegree seeking individuals whose primary goal is core knowledge in those disciplines.

For the most current information or further questions, please refer to the public health sciences department website (<http://wichita.edu/phs/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

### Programs in Public Health Sciences

The School of Health Sciences, department of public health sciences offers the following degree programs:

- Master of Arts in Aging Studies (p. 187)
- Master of Health Administration (p. 189) (includes the Master of Health Administration to Master of Arts in aging studies program)
- Dual/Accelerated Bachelor's Degree to Master of Aging Studies (p. 191)
- Dual/Accelerated BS in Health Management to Master of Health Administration (p. 191)
- Graduate Emphasis in Aging Studies (p. 193)

### Certificates in Public Health Sciences

#### Program Overview

- Graduate Certificate in Aging Studies ([https://www.wichita.edu/academics/majors/aging\\_studies\\_certificate\\_graduate.php](https://www.wichita.edu/academics/majors/aging_studies_certificate_graduate.php))<sup>1</sup>
- Graduate Certificate in Health Administration ([https://www.wichita.edu/academics/majors/health\\_administration\\_certificate\\_graduate\\_362.php](https://www.wichita.edu/academics/majors/health_administration_certificate_graduate_362.php))<sup>1</sup>
- Graduate Certificate in Public Health ([https://www.wichita.edu/academics/majors/public\\_health\\_certificate\\_graduate\\_341.php](https://www.wichita.edu/academics/majors/public_health_certificate_graduate_341.php))<sup>1</sup>

#### Curriculum Details

- Graduate Certificate in Aging Studies (p. 192)
- Graduate Certificate in Health Administration (p. 192)
- Graduate Certificate in Public Health (p. 193)

<sup>1</sup> Link opens new window.

### Administrator-in-Training (AIT) Practicum Placement

The AIT practicum placement is available to individuals with a bachelor's degree, who have had coursework and/or professional experience in aging studies or long-term care; management concepts; and finance or accounting.

Students who hold a bachelor's degree and are interested in pursuing the AIT practicum as a non-degree seeking student can register online to complete the practicum through Wichita State University's conference and community education office. Graduate students pursuing the Master of Arts in aging studies (p. 187), senior living management concentration can complete the AIT practicum for 3 credit hours (AGE 660) as the culminating experience.

The AIT is designed to place qualified applicants in a 480-clock-hour practicum placement with a qualified nursing home administrator, as part of the preparation necessary for becoming a licensed nursing home administrator in the state of Kansas. The 480 practicum hours can begin at any point during the year, but must be completed within one year. The student works with their site preceptor to establish a schedule.

Students without coursework and/or professional experience in aging studies or long-term care; management concepts; and finance or accounting are encouraged to apply to aging studies, non-degree category in order to complete coursework through the department of public health sciences. Interested program majors may pursue the AIT course recommendations while completing their degree programs.

### Example Coursework Recommendations

*Interested students who already hold a bachelor's degree are highly encouraged to consider the Master of Arts in aging studies (p. 187), senior living management concentration to advance their education and maximize their career potential in senior living.*

Course	Title	Hours
AGE 562	Human Resource Management in Long-Term Care	3
AGE 564	Assisted Living Management and Operations	3
AGE 626	Senior Living Hospitality	3
AGE 710	Skilled Nursing Home Management and Operations	3
PHS 621	Supervisory Management in Health Care Organizations	3
PHS 622	Human Resource Management in Health Care Organizations	3

### Courses in Public Health Sciences

- Aging Studies (AGE) (p. 259)
- Health Administration (HA) (p. 345)
- Public Health Sciences (PHS) (p. 392)

## MA in Aging Studies

A master's degree in aging studies from Wichita State University provides students the opportunity to maximize their career potential by specializing in the aging professions, complementing existing experience and building upon their educational background. Skill sets are diversified by flexible curriculum that prepares students for a wide range of professional settings.

Students may transition a career/area of interest to an aging service position within another industry (e.g. social work, senior living, senior services, nursing home administration, fitness, nutrition, business). The aging studies curriculum incorporates a variety of perspectives from the numerous disciplines concerned with the physical, mental and social aspects of life.

The MA in aging studies can be completed 100 percent online. It comprises 36 total credit hours. Core courses comprise 15 credit hours. Additional hours are chosen within three curricular concentrations: senior living management, senior community services and public health.

**Senior Living Management:** Prepares students to serve in administrative, managerial and director positions within senior living and long-term care communities.

- Administrator-in-Training Program (AIT) (p. 187): Students pursuing this concentration are also eligible to complete the AIT program, providing the practical experience required to become a licensed nursing home administrator.

**Senior Community Services:** Prepares students to engage adults aging in the community through senior centers, senior programming and/or social services. Ideal for current social service professionals looking to advance their careers, enhance their capacity to work with older adults, and combine what they do with aging.

**Public Health:** Prepares students to work in the public health sector such as local government agencies and community programming. Specific focus in public health and aging, epidemiology, environmental health, statistics, and the social/behavioral aspects of public health.

- Graduate Certificate in Public Health (GCPH) (p. 193): Students in this concentration also earn the GCPH, a nationally recognized certification, alongside their master's degree.

Students choose from one of three culminating study options: thesis, internship and coursework, to complete the program. Professionals with licensed credentials may be eligible for 3-6 credit hours of Credit for Prior Learning. Review the Requirements tab for further details. The aging studies program provides quality distance education, enabling students to earn the MA from anywhere in the state or country.

### Admission and Application

1. Admission to the Graduate School at Wichita State University;
2. A grade point average of 2.750 (4.000 system); and
3. International applicants must have a score higher than 79 on the internet-based TOEFL examination, an overall minimum band score of 6.5 on the IELTS examination, or a score of 58 on the PTE-Academic examination.

### Additional Supporting Documents

1. Contact information and recommendations from two professional references;
2. A personal goals essay of 500 words or less which clearly articulates the applicant's reason for seeking admission to the aging studies program. Essay should be reflective of their desire for admittance and professional goals related to the aging studies program; and
3. Include in the personal goals essay, a statement documenting computer literacy including experience with online learning, Microsoft Office and overall familiarity with online navigation. Students are highly encouraged to review the information found on the Wichita State Office of Online Learning website, paying particular attention to the Introduction to Online Learning, and Computer Skills and Preparation information.
4. The GRE is not required for admission.

To be reviewed for admission, applicants must submit the designated application for admission, application fee, supporting transcripts and

additional supporting documents to the Graduate School via the online application portal.

The priority application deadlines for scholarship consideration are: July 15 for fall admission; December 1 for spring admission; April 15 for summer admission. Applications are reviewed when the graduate application fee and all supporting documents have been submitted and received by the program director. Applicants will be notified of their admission status by the Graduate School. Upon enrollment, he or she will be assessed a \$50 nonrefundable acceptance fee. For additional details, please see the aging studies program website (<https://www.wichita.edu/academics/online/publichealth/>).<sup>1</sup>

<sup>1</sup> Link opens new window.

### Program Requirements

Course	Title	Hours
<b>Required Core Courses for All Concentrations (15 credit hours)</b>		
AGE 702	Research Methods	3
AGE 717	Health Communications and Aging	3
AGE 718	Family Care Management	3
AGE 765	The Medicare System	3
AGE 798	Perspectives on an Aging Society	3
<b>Culminating Experience Options for All Concentrations (3 credit hours)</b>		
Select one of the following culminating experiences:		3
<i>Thesis:</i>		
AGE 895	Thesis Research	
<i>Internship:</i> <sup>1</sup>		
AGE 810 or AGE 660	Aging Studies Practicum Administrator-in-Training Long-Term Care Practicum	
<i>Coursework with Comp Exam:</i>		
Any 3-credit-hour graduate-level course in AGE or PHS could count as an elective with advisor approval. Outside relevant graduate level courses may also be considered. Consult a graduate advisor for approval.		
<b>Total Concentration Hours (see options below)</b>		<b>18</b>
Total Credit Hours		36

<sup>1</sup> AGE 660 Administrator-in-Training Long-Term Care Practicum available in Senior Living Management Concentration only.

In addition to the core courses and culminating option, students select one of the following concentrations.

### Senior Living Management Concentration

Students should inquire with their advisor about adding the Graduate Certificate in health administration (p. 192) or the Graduate Certificate in public health (p. 193) to the senior living management concentration.

Course	Title	Hours
AGE 562	Human Resource Management in Long-Term Care	3
AGE 564	Assisted Living Management and Operations	3
AGE 710	Skilled Nursing Home Management and Operations	3
AGE 626	Senior Living Hospitality	3
500+ Open Elective		3

500+ Open Elective		3
<i>May Also Select MHA to MA Dual Degree Courses:</i>		
PHS 621	Supervisory Management in Health Care Organizations	
PHS 622	Human Resource Management in Health Care Organizations	
PHS 812	Health Care Policy and Administration	
Total Credit Hours		18

### Senior Community Services Concentration

Students should inquire with their advisor about adding the Graduate Certificate in public health (p. 193) to the senior community services concentration.

Course	Title	Hours
AGE 512	Diversity and Aging	3
AGE 560	The Aging Network	3
AGE 624	Community Programming	3
500+ Open Elective		3
500+ Open Elective		3
500+ Open Elective		3
Total Credit Hours		18

### Public Health Concentration

Students pursuing the public health concentration will also earn the Graduate Certificate in public health (p. 193) in addition to their MA degree.

Course	Title	Hours
PHS 804	Principles of Statistics in the Health Sciences	3
PHS 808	Principles of Epidemiology	3
PHS 814	Social and Behavioral Aspects of Public Health	3
PHS 816	Environmental Health	3
AGE 622 or PHS 812	Public Health and Aging Health Care Policy and Administration	3
500+ Open Elective		3
Total Credit Hours		18

Students are expected to consult with their graduate advisor and establish their plan of study following the completion of 12 graduate credit hours, as discussed in the Graduate School section of the Graduate Catalog.

### Credit for Prior Learning

Industry recognized field specific external credentials are valued by our faculty. Documentation of external credentials allows prospective students to enter with executive status. In accordance with the Graduate School's Credit for Prior Learning (p. 36) (CPL) policy, CPL may satisfy up to six (6) curricular credit hours. In addition, the following program policies apply:

- CPL credits are included in the total transfer credits allowed toward a degree.
- All CPL credit hours posted to academic records are always equivalent to specified courses. Future enrollment in a course designated for CPL equivalency is not permitted. CPL associated courses cannot be repeated to receive additional course credits towards the degree.

- CPL credits may be earned through credentials up until completion of 75 percent of the curriculum. This includes credentials awarded before joining the program.

### Portfolio Program

The CPL Portfolio Program is a process used to compile documentation and ultimately demonstrate that earned credentials are equivalent to specific courses. Students use the Portfolio Program to request credit for learning achieved through nonacademic mechanisms. If equivocal, associated credit hours will be posted to the academic record by the registrar's office. Each portfolio will include:

- Introduction: provide an overview of how the credential/professional experience is related to the course.
- Course Information: provide the catalog course description and course learning outcomes.
- Summary: match each course learning outcome to professional experiences or credential content.
- Narrative: demonstrate how each course learning outcome was actualized.
- Documentary Evidence: include documentation to support knowledge of learning outcomes.
- Resume

Students may submit course-specific portfolios to request CPL for verified professional credentials, certifications, or licenses issued by a governmental agency or professional organization. Students are eligible to receive credit for credentials issued or valid during the effective dates, or validity period, for the credit recommendation. Pre-approved external credential equivalents:

- Assisted living license equivalency: AGE 564 Assisted Living Management and Operations
- Operator's license equivalency: AGE 720 Independent Readings
- Activities director certification equivalency: AGE 624 Community Programming
- Social services designee certification equivalency: AGE 720 Independent Readings
- Medicare SHICK certification equivalency: AGE 765 The Medicare System
- Social work equivalency: AGE 520 Family and Aging

### Applied Learning

Students in the Master of Arts in aging studies are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing the following course requirements: AGE 717.

## Master of Health Administration

Students advance their career potential in health care administration by completing the online Master of Health Administration (MHA) degree program at Wichita State University. The MHA allows students to complement existing experience and educational background in health management, building on that knowledge base to better plan, direct, manage and coordinate medical and health services. The program prepares students in areas of management, health care finance, human resource administration, strategic planning, law and ethics, health economics, and health information systems.

The MHA provides quality distance education, enabling students to earn their Master of Health Administration from almost anywhere in the world; most international students residing in their home country

can complete an online degree. For more information, please see WSU Online (<https://wichita.edu/online/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

### Admission

In order to be admitted into the Master of Health Administration degree program, the applicant must:

- Possess an undergraduate degree in health management, business, clinical profession or related field.
- Have a minimum overall GPA of 2.750 (on a 4.000 scale) or a 2.750 in the last 60 credit hours of undergraduate coursework. Students with lower GPAs may apply and will be considered for probationary admission pending a strong personal goal essay and letters of recommendation.
- Submit a personal goals essay of 500 words or less which clearly articulates the applicant's reason for seeking admission to the MHA program. The personal goals essay should specifically address the following:
  - Part I: How will seeking a Masters in Health Administration help you advance your personal and professional goals?
  - Part II: Describe your performance as an undergraduate student. Explain how your experience in undergraduate studies has prepared you to be a motivated, committed graduate student, ready to work in collaboration with your peers throughout the graduate program.
- Submit a current resume.
- Submit two professional letters of recommendation from persons acquainted with the applicant's background and potential success in graduate studies.
- All applicants whose native language is not English and who have not received their undergraduate education in an English-speaking country must submit scores from the International English Language Testing System (IELTS) or the Test of English as a Foreign Language (TOEFL). An IELTS score of 7.0, or a TOEFL of 88 (internet)/230 (computer)/570 (paper) is required.
- The GRE is not required for admission.

### Application Deadlines

Priority application deadlines are: July 15 for fall admission, December 1 for spring admission.

To be reviewed for admission, applicants should submit the designated application for admission, application fee, supporting transcripts and additional supporting documents to the Graduate School via the online application portal.

Applications are reviewed when the graduate application fee and all supporting documents have been submitted and are received by the program director. Applicants will be notified of their admission status by the Graduate School. Upon enrollment, the student will be assessed a \$100 nonrefundable acceptance fee. For additional details, please visit the MHA program website ([https://www.wichita.edu/academics/online/Program\\_Pages/MHA.php](https://www.wichita.edu/academics/online/Program_Pages/MHA.php))<sup>1</sup>.

<sup>1</sup> Link opens new window.

### Program Requirements

The MHA is offered 100 percent online culminating in a 3-credit-hour practicum that can be completed in the student's state of residency. Students may be expected to complete some synchronous

hours in select coursework across the curriculum and will complete a comprehensive exam in their last semester of didactic study.

The MHA curriculum consists of 42 credit hours.

- Students must complete 36 credit hours of core courses which provide sufficient background for the MHA discipline and adhere to standards set forth by the accrediting body, Commission on Accreditation of Health Care Management Education (CAHME);
- Students then complete 3 credit hours of an elective; and
- Culminate their degree with completion of a 3-credit-hour practicum in the final semester of study.

Course	Title	Hours
<b>Core Courses</b>		
HA 803	Healthcare Finance	3
HA 621	Supervisory Management in Health Care Organizations	3
HA 622	Human Resource Management in Health Care Organizations	3
HA 802	Health Law and Ethics	3
HA 804	Health Informatics	3
HA 806	Issues and Trends in Health Professions	3
HA 808	Principles of Epidemiology	3
HA 810	Strategic Planning and Performance Analytics	3
HA 812	Health Care Policy and Administration	3
HA 814	Health Care Leadership and Operations Management	3
HA 833	Health Economics	3
HA 848	Concepts of Quality in Healthcare	3
<b>Electives</b>		
Select 3 credit hours from the following <sup>1</sup>		3
HA 518	Rural Health Care Leadership	
AGE 562	Human Resource Management in Long-Term Care	
AGE 564	Assisted Living Management and Operations	
AGE 626	Senior Living Hospitality	
AGE 710	Skilled Nursing Home Management and Operations	
MKT 801	Marketing Management	
DS 850	Operations Management	
<b>Practicum</b>		
HA 816	MHA Practicum	3
Total Credit Hours		42

<sup>1</sup> Additional electives are allowed, consult with a graduate advisor for approval.

### Applied Learning

Students in the Master of Health Administration program are required to complete an applied learning or research experience to graduate from this program. The requirements can be met by the successful completion of HA 816.

### MHA to MA in Aging Studies

Students completing the WSU Master of Health Administration (MHA) program may be allowed to apply up to 12 credit hours (four courses) to

the WSU Master of Arts in aging studies (AGE) program (i.e., double-counting 12 credit hours between two programs). The 12 credit hours are completed as a requirement for the MHA program and should be taken from the required courses in the AGE senior living management concentration curriculum. The crossover coursework includes:

Course	Title	Hours
<b>Select 12 credit hours from the following:</b>		
PHS 621	Supervisory Management in Health Care Organizations	12
PHS 622	Human Resource Management in Health Care Organizations	
PHS 812	Health Care Policy and Administration	
AGE 562	Human Resource Management in Long-Term Care	
AGE 564	Assisted Living Management and Operations	
AGE 626	Senior Living Hospitality	
AGE 710	Skilled Nursing Home Management and Operations	

Total Credit Hours 12

The main objective for this change is to provide the opportunity for students to pursue dual degrees (MHA and AGE) and structures the curriculum allowing both programs to be completed within a reasonable time frame. The double-counting rule allows students to complete both programs by taking 66 credit hours of coursework. The MHA program must be successfully completed before the student can be admitted to the AGE program for the completion of the dual master's degree.

## Dual/Accelerated Bachelor's Degree to Master of Aging Studies

### Admission

To be considered for admission to the accelerated program in aging studies, a prospective student must submit a graduate school application and fee, and satisfy the following requirements:

1. An overall undergraduate GPA of 2.750;
2. Completion of at least 60 credit hours of undergraduate study;
3. A letter of recommendation from one faculty member; and
4. A personal goals essay of 500 words or less which clearly articulates the applicant's reason for seeking admission to the accelerated program.

Prospective students apply for admission to the program during the semester prior to the first semester in which he or she intends to enroll in a course for graduate credit.

A student in the dual/accelerated program will be admitted to the MA in aging studies upon being awarded the bachelor's degree if all admission requirements for the master's program are satisfied at that time and the student has made continued satisfactory progress.

The online dual/accelerated bachelor's degree to master's in aging studies is designed to prepare qualified students for graduate work in aging studies at WSU, while allowing them to earn dual credit towards their bachelor's degree. The accelerated program is ideal for undergraduate students across multiple disciplines entering their junior/senior year. A student admitted to the accelerated program will be allowed to enroll in courses for graduate credit (up to 9 credit hours)

while completing their undergraduate degree requirements. Allowed dual credit hours include AGE 717, AGE 718 and AGE 798.

### Program Guidelines

- For each of the dual credit courses, the student must meet the learning outcomes specific to graduate students to apply the course to graduate credit, earning no less than a 3.000 in each course.
- Each course taken for joint credit must be so identified at the time of enrollment in that course and a dual enrollment form must be completed which indicates the courses taken for graduate credit. Allowed dual credit hours include: AGE 717, AGE 718 and AGE 798.
- Continuation in the accelerated program also requires a continuing WSU undergraduate cumulative GPA of at least 2.750.
- A student who has previously been admitted to a graduate degree program at Wichita State may not be admitted to the dual/accelerated program.
- For the purpose of requesting exceptions to the program and university regulations, students in a dual/accelerated degree program are considered undergraduates and thus proceed through the undergraduate process until the bachelor's degree is awarded.

## Dual/Accelerated BS in Health Management to Master of Health Administration

### Admission and Application

To be considered for admission to the accelerated program in health administration, a prospective student must submit a graduate school application and fee, and satisfy the following requirements:

1. An undergraduate GPA of 2.750 overall, and 3.250 in PHS courses;
2. Completion of at least 60 credit hours of undergraduate study;
3. Completion of at least four of the six PHS core classes (PHS 325, PHS 344, PHS 356, PHS 410, PHS 642 and/or HP 408);
4. A letter of recommendation from one member of the PHS faculty; and
5. A personal goals essay of 500 words or less which clearly articulates the applicant's reason for seeking admission to the accelerated program.

Prospective students apply for admission to the program during the semester prior to the first semester in which he or she intends to enroll in a course for graduate credit.

A student in the dual/accelerated program will be admitted to the Master of Health Administration upon being awarded the bachelor's degree if all admission requirements for the master's program are satisfied at that time and the student has made continued satisfactory progress.

### Program Guidelines

- A student admitted to the accelerated program will be allowed to enroll in courses for graduate credit (up to 9 credit hours) while completing their undergraduate degree requirements for health management.
- For each of the dual credit courses, the student must meet the learning outcomes specific to graduate students to apply the course to graduate credit, earning no less than a 3.000 in each course.
- Each course taken for joint credit must be so identified at the time of enrollment in that course and a dual enrollment form must be completed which indicates the courses taken for graduate credit. Allowed joint degree hours include: PHS 621, PHS 622 and

PHS 848. All 9 credit hours may be taken as electives under the Bachelor of Science in health management and are core to the Master of Health Administration.

- Continuation in the accelerated program also requires a continuing WSU undergraduate cumulative GPA of at least 2.750.
- A student who has previously been admitted to a graduate degree program at Wichita State may not be admitted to the dual/accelerated program.
- For the purpose of requesting exceptions to the program and university regulations, students in a dual/accelerated degree program are considered undergraduates and thus proceed through the undergraduate process until the bachelor's degree is awarded.

## Certificate in Aging Studies

A graduate certificate in aging studies (GCAGE) allows graduate students and working professionals to expand their knowledge of the fundamental concepts of aging, to better serve an aging population they frequently encounter. The GCAGE prepares students in aging-specific areas of health communication, navigating the Medicare system, family care management, public health priorities and perspectives on an aging society.

The GCAGE can be completed 100 percent online. All 15 credit hours are transferable to the Master of Arts in aging studies program. The certificate may also be pursued concurrently with a graduate degree program such as the Master of Health Administration, the Master of Business Administration, the Master of Social Work and clinical disciplines in the College of Health Professions. The GCAGE provides quality distance education, enabling students to earn their graduate certificate from anywhere in the state or country.

### Admission

In order to be admitted into the graduate certificate in aging studies program, the applicant must:

1. Be admitted to the Graduate School in a degree program or in nondegree Category A status. All Graduate School policies relative to admission apply. International students will not be issued an I-20 for certificate programs alone. International students may obtain this certificate only while concurrently pursuing a graduate degree;
2. Have a bachelor degree of any discipline to be considered for admission; and
3. Have a minimum overall GPA of 2.750 (on a 4.000 scale) or a 2.750 in the last 60 credit hours of undergraduate coursework.

**Application Deadlines:** July 15th for fall admission; December 1st for spring admission; April 15th for summer admission.

### Program Requirements

It is possible for a student to complete the requirements for the certificate in one year. Entry to the program is offered fall, spring and summer semesters. It comprises a total of 15 credit hours. Students who complete this certificate and then wish to complete the Master of Arts in aging studies to further concentrate in senior living management, senior community services or the public health sector will have already earned 15 of the required 36 credit hours and can then complete their master's within one year. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate. The courses are offered on the following rotation:

Course	Title	Hours
AGE 622	Public Health and Aging (spring)	3

AGE 717	Health Communications and Aging (fall)	3
AGE 718	Family Care Management (spring)	3
AGE 765	The Medicare System (summer)	3
AGE 798	Perspectives on an Aging Society (fall or spring)	3
Total Credit Hours		15

## Certificate in Health Administration

Students expand upon prior business knowledge and expertise to advance their career potential in health care administration by completing the online Graduate Certificate in health administration (GCHA) program at Wichita State University. The GCHA allows students to complement existing experience and educational background in business, finance or related management/leadership, building upon that knowledge base to better plan, direct, manage and coordinate medical and health services. The program prepares students in areas of health care finance, health care leadership, operations management, strategic planning, health care policy, law and ethics, and trends in the health care delivery system.

The curriculum can be completed within one academic year, with entry to the program allowed in both fall and spring semesters. All 15 credit hours are transferable to the Masters in Health Administration program. The certificate may also be pursued concurrently with a graduate degree program such as the Master of Arts in aging studies or the Master of Business Administration. The GCHA provides quality distance education, enabling students to earn their graduate certificate from anywhere in the state or country.

### Admission

To be admitted into the graduate certificate in health administration degree program, the applicant must:

- Be admitted to the Graduate School in a degree program or in nondegree Category A status. All Graduate School policies relative to admissions apply. International students will not be issued an I-20 for certificate programs alone. They may obtain this certificate only while concurrently pursuing a graduate degree.<sup>1</sup>
- Possess an undergraduate or graduate degree in health management, business, finance, clinical profession or related field.
- Have a minimum overall GPA of 2.750 (on a 4.000 scale) or a 2.750 in the last 60 credit hours of undergraduate coursework.
- Submit a personal goals essay of 250 words or less which clearly articulates the applicant's reason for seeking the graduate certificate in health administration.
- Submit a current resume.

Priority application deadlines: July 15 for fall admission; December 1 for spring admission.

<sup>1</sup> Online only students (including international students) may complete the certificate without concurrent enrollment in a WSU graduate degree program.

### Program Requirements

The GCHA can be completed 100 percent online. It comprises 15 total credit hours covering topics such as health law and ethics, issues and trends in health professions, strategic planning and performance analytics in health care, health care policy and administration, health care finance, and health care leadership and operations management.

Classes completed in pursuit of the GCHA can be applied to the graduate program of study for the Master of Health Administration (MHA). A student admitted to the Master of Health Administration can apply all 15 GCHA credit hours to the MHA degree. Courses started more than 10 years before the semester in which the master's degree work is completed may not be used as part of the degree program.

In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

Course	Title	Hours
<b>Required Courses</b>		
HA 802	Health Law and Ethics	3
HA 803	Healthcare Finance	3
HA 812	Health Care Policy and Administration	3
HA 814	Health Care Leadership and Operations Management	3
<i>Select one of the following</i>		
HA 806	Issues and Trends in Health Professions	3
or HA 810	Strategic Planning and Performance Analytics	
Total Credit Hours		15

## Certificate in Public Health

A graduate certificate in public health provides documentation that a student has completed a core set of public health courses beyond the bachelor's degree level. Through the graduate certificate in public health program, graduates bring population-based health knowledge to their work in health and medicine. The program covers principles and issues in health care policy and administration, the social and behavioral aspects of public health, epidemiology, environmental health and biostatistics. Students have the option to focus on coursework in health care policy and administration or public health and aging.

The required courses for this certificate are based on the five areas defined by the Council on Education for Public Health to be the basic areas of public health knowledge. The courses are offered on a fixed schedule so that all are taught once a year. Students can complete the coursework in one academic year. All courses are offered fully online to allow for a flexible learning environment and to accommodate working professionals.

### Admission

Admission to this graduate certificate program in public health requires that the applicant meets the following criteria:

1. Possess a bachelor's degree from a regionally accredited institution, or a foreign university with substantially equivalent requirements for the bachelor's degree, and have a minimum GPA of 2.750 in the last 60 credit hours of coursework;
2. Demonstrate evidence of training and/or experience indicative of adequate preparation for the curriculum. This could include a degree in a recognized health profession, one or more years of responsible work experience in the health field, or other relevant evidence; and
3. Submit an official report of completion of the Test of English as a Foreign Language (TOEFL) with a score of 88 or above, or overall band score of 7.0 on IELTS exam, or a score of 65 or above on the PTE-Academic exam if the native language is not English. This report must be no more than two years old at the time it is reviewed by the certificate admissions committee.

The deadline for guaranteed review of applications to the public health certificate program is June 1 for the fall semester, and November 1 for the spring semester.

### Program Requirements

The total number of credit hours required for the certificate in public health is 15, with a cumulative grade point average of 3.000 or above and no grade that generates less than 2.000 credit points per credit hour. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate. Students must complete the following courses:

Course	Title	Hours
<b>Required Courses</b>		
PHS 804	Principles of Statistics in the Health Sciences <sup>1</sup>	3
PHS 808	Principles of Epidemiology	3
PHS 814	Social and Behavioral Aspects of Public Health	3
PHS 816	Environmental Health	3
<i>Select one of the following</i>		
PHS 812	Health Care Policy and Administration	3
or AGE 622	Public Health and Aging	
Total Credit Hours		15

<sup>1</sup> A comparable graduate statistics course is allowed as substitution for PHS 804 with graduate advisor's consent.

## Graduate Emphasis in Aging Studies

A 12–15 credit hour emphasis in aging studies may be taken as part of a graduate degree program in another department. Students who wish to pursue the aging studies emphasis must fulfill the requirements in both departments.

## School of Nursing Master of Science in Nursing (MSN)

The program is individualized to meet the needs and professional goals of each student. The curriculum has been developed to accommodate part-time study (8 or fewer credit hours), as well as full-time study (9–12 credit hours). The purpose of the graduate program is to prepare nurses for advanced roles in indirect and direct care, e.g., administrators and educators.

### Capstone Experience

A capstone experience is required of all MSN students. The capstone experience is completed within the student's last two semesters.

### Time Limits

Students have six years in which to complete the MSN program starting from the first semester the student begins the coursework that is designated in the plan of study. Time limits are not imposed on transfer courses from a previously awarded graduate degree or from a graduate certificate awarded by Wichita State University.

In cases where the above time limits are exceeded and in which the student desires to have a course count toward degree completion, the outdated course must be validated or substituted with a course within the time limits, or an Application for Exception to Graduate Regulations must be filed and approved to waive the time limits for the course in question. To have courses validated, students seek approval from their department, and must submit a Course Validation Request form to the Graduate School for validation approval. The instructor must identify on the form the process that will be used to certify that

the student has achieved a grade value of 3.000 on a 4.000 point scale. Grades lower than a *B* (generating less than 3.000 grade points), will not be accepted.

Transfer courses and work that originally received a grade lower than a *B*, (generating less than 3.000 grade points), cannot be validated. Courses completed 10 or more years before the degree is granted, even if previously validated, may not be used to meet degree requirements.

### **Applied Learning**

Students in MSN programs are required to complete an applied learning or research experience to graduate from these programs. The requirement can be met by completing the following program course requirements:

Nursing Education focus will complete all coursework culminating with NURS 724, Nursing Leadership and Administration focus will complete all coursework culminating with NURS 812.

### **Doctor of Nursing Practice**

This program is intended to provide advanced education in many areas beyond that provided by the MSN program.

Some areas of advanced content are: critical thinking and leadership in the health care system, and health policy.

There are two entry points for this program. Those who have completed either the BSN or the MSN may apply.

### **Credit Hours**

Students who enter with the BSN degree complete a minimum of 74 credit hours for the entire DNP degree. An MSN degree is not awarded.

Students who enter with the MSN degree complete a minimum of 29 credit hours for the DNP degree.

### **Final Project**

Students complete a project within the DNP program culminating with the residency course. (See DNP Project (p. 197)).

### **Time Limits**

For the postmaster's DNP program, the doctorate must be completed within six years from the effective semester of admission. For the postbachelor's DNP program, the doctorate must be completed within nine years from the effective semester of admission. Time limits are not imposed on transfer courses from a previously awarded graduate degree or from a graduate certificate awarded by Wichita State University.

In cases where the above time limits are exceeded and in which the student desires to have a course count toward degree completion, the outdated course must be validated or substituted with a course within the time limits, or an Application for Exception to Graduate Regulations must be filed and approved to waive the time limits for the course in question. To have courses validated, students seek approval from their department, and must submit a Course Validation Request form to the Graduate School for validation approval. The instructor must identify on the form the process that will be used to certify that the student has achieved a grade value of 3.000 on a 4.000 point scale. Grades lower than a *B* (generating less than 3.000 grade points), will not be accepted.

Transfer courses and work that originally received a grade lower than a *B*, (generating less than 3.000 grade points), cannot be validated. Courses completed 10 or more years before the degree is granted, even if previously validated, may not be used to meet degree requirements.

### **Applied Learning**

Students in DNP programs are required to complete an applied learning or research experience to graduate from these programs. The requirement can be met by completing all coursework culminating with the DNP Project. This evidence-based project stems from a series of courses and practicum work and is finalized and defended during the NURS 960 residency course.

### **Specializations**

All students request entrance to a specific specialization upon application. The internal School of Nursing admission process includes this placement. Admission into a specialization for DNP applicants with a BSN degree is maintained as students successfully complete coursework on their plan of study. Those who do not successfully complete coursework compatible with their plan of study are not continued in the DNP program. Admission for MSN candidates is to the clinical (or administrative) specialization area in which their MSN was completed. Any exception is determined by individual review.

Students choose from the following individual/family focus specialties:

- Nurse Practitioner
  - Adult — Gerontology Acute Care
  - Family
  - Psychiatric/Mental Health

### **Graduate Certificates**

#### **Postmaster's Certificate**

Students already admitted to the DNP degree program or alumni from a CCNE accredited DNP degree program may select 25 additional credit hours in a postmaster's specialization offered by WSU. Please contact the graduate nursing programs office for further information.

### **Programs in the School of Nursing**

#### **Master of Science in Nursing (MSN)**

- Nursing Education (p. 198)
- Nursing Leadership and Administration (p. 199)
- Dual/Accelerated RN to MSN (p. 199)

#### **Doctor of Nursing Practice**

##### **Doctor of Nursing Practice (DNP) - Postbaccalaureate**

- Adult - Gerontology Acute Care Nurse Practitioner (AG/ACNP) (p. 194)
- Family Nurse Practitioner (FNP) (p. 195)
- Psychiatric/Mental Health Nurse Practitioner (PMHNP) (p. 196)

##### **Doctor of Nursing Practice (DNP) - Postmaster's**

- Individual/Family Focus (p. 197)

### **Courses in the School of Nursing**

- Nursing (NURS) (p. 383)

## **DNP in Nursing - Adult/Gerontology Acute Care Nurse Practitioner (AG/ACNP)**

### **Admission**

1. An approved graduate-level statistics course taken within the last six years;
2. A Bachelor of Science in Nursing from a nationally accredited school (NLN or CCNE);
3. A GPA of 3.000 or higher in the following areas:
  - a. All undergraduate coursework,
  - b. All undergraduate nursing courses,

- c. Any graduate-level courses taken,
  - d. The following four science courses taken with an overall GPA of at least 3.000 and no grade that generates less than 2.000 credit points per credit hour in any one course: anatomy/physiology, microbiology, pathophysiology and pharmacology;
4. One application must be submitted to the Graduate School. The application must be submitted by May 1 (fall admission only);
  5. All students will request entrance to a specific specialization upon application;
  6. Evidence of license as a registered nurse in *Kansas*;
  7. Coverage by professional and general liability insurance. CNS and NP students must have NP student coverage prior to enrollment in practicum coursework. Minimum coverage required: \$1,000,000 single incident/\$3,000,000 aggregate for both professional and general liability;
  8. Computer literacy is an expectation of the graduate nursing program. Skills should include: word processing, email, file attachments and internet searches. If courses require Blackboard, students are highly encouraged to complete the Blackboard orientation. Students may elect to take PC 105, or another basic computer skills course, to fulfill the computer literacy expectation; and
  9. Technical standards must be met.

### Program Requirements

Course	Title	Hours
<b>Core and Preparatory Courses</b>		
NURS 701	Advanced Health Assessment	2
NURS 702	Advanced Health Assessment Laboratory	1
NURS 703	Theoretical Foundations of Advanced Nursing Practice	3
NURS 715	Advanced Nursing Practice Roles	1
NURS 793	Advanced Pathophysiology I	4
HS 710	Applied Clinical Pharmacology	3
HS 711	Pharmacological Management of Acute and Chronic Diseases	3
NURS 801	Health Care Systems: Policy and Politics	3
NURS 806	Evidence-Based Nursing Practice and Outcomes of Care	3
NURS 824	Advanced Pathophysiology II	2
NURS 826	Evidence-Based Nursing Project I	2
NURS 828	Evidence-Based Nursing Project II	2
NURS 901	Organizational Systems and Leadership	3
NURS 902	Population and Social Determinants of Health	3
<b>Specialization Courses</b>		
NURS 728	Advanced Practice Technology and Skills	3
NURS 874	Adult/Older Adult ACNP Practicum I	4
NURS 840	Pathophysiology and Management of Adult/Older Adult Acute Care Problems I	3

NURS 842	Transition to the ACNP Advanced Practice Role	1
NURS 909	Pathophysiology and Management of Adult/Older Adult Acute Care Problems II	3
NURS 910	Adult/Older Adult ACNP Practicum II	4
NURS 911	Transition to the ACNP Advanced Practice Role II	1
NURS 912	Management of Acute and Critical Problems of Adult/Older Adult Populations	3
NURS 952	Advanced Nursing Practice Preceptorship	3
Select one Graduate Nursing Elective		3
<b>Capstone Courses</b>		
NURS 956	Practice Management	2
NURS 959	Evidence-Based Nursing Project III	3
NURS 960	Residency	6
Total Credit Hours		74

### Elective Courses

Elective coursework is available in many topic areas, including education, diabetes, human lactation, dermatology and low back pain. Students should see their advisor for assistance with elective choices.

### DNP Project

Students complete an evidence-based project. Students work collaboratively with at least one graduate nursing faculty member who is chairperson of their committee and one other graduate faculty member to identify an evidence-based practice problem and plan the implementation to address the problem. Successful defense of the evidence-based project proposal is the expected outcome within the Evidence-Based Project III course. After successful completion and defense of the Evidence-Based Project III proposal, the candidate may enroll in residency hours. The residency allows the student to complete/disseminate the results of the project and develop a portfolio documenting practice scholarship. The residency hours may be taken in 2-, 4- or 6-hour increments and may be repeated until requirements are met. The candidate completes an oral defense of the project at the end of the residency.

### Applied Learning

Students in the DNP AG/ACNP program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing all coursework culminating with the DNP Project. This evidence-based project stems from a series of courses and practicum work and is finalized and defended during the NURS 960 residency course.

## DNP in Nursing - Family Nurse Practitioner (FNP)

### Admission

1. An approved graduate-level statistics course taken within the last six years;
2. A Bachelor of Science in Nursing from a nationally accredited school (NLN or CCNE);
3. A GPA of 3.000 or higher in the following areas:
  - a. All undergraduate coursework,
  - b. All undergraduate nursing courses,
  - c. Any graduate-level courses taken,

- d. The following four science courses taken with an overall GPA of at least 3.000 and no grade that generates less than 2.000 credit points per credit hour in any one course: anatomy/physiology, microbiology, pathophysiology and pharmacology;
- One application must be submitted to the Graduate School. The application must be submitted by May 1 (fall admission only);
  - All students will request entrance to a specific specialization upon application;
  - Evidence of license as a registered nurse in *Kansas*;
  - Coverage by professional and general liability insurance. CNS and NP students must have NP student coverage prior to enrollment in practicum coursework. Minimum coverage required: \$1,000,000 single incident/\$3,000,000 aggregate for both professional and general liability;
  - Computer literacy is an expectation of the graduate nursing program. Skills should include: word processing, email, file attachments and internet searches. If courses require Blackboard, students are highly encouraged to complete the Blackboard orientation. Students may elect to take PC 105, or another basic computer skills course, to fulfill the computer literacy expectation; and
  - Technical standards must be met.

### Program Requirements

Course	Title	Hours
<b>Core and Preparatory Courses</b>		
NURS 701	Advanced Health Assessment	2
NURS 702	Advanced Health Assessment Laboratory	1
NURS 703	Theoretical Foundations of Advanced Nursing Practice	3
NURS 715	Advanced Nursing Practice Roles	1
NURS 793	Advanced Pathophysiology I	4
NURS 795A	Applied Drug Therapy I	3
NURS 795B	Applied Drug Therapy II	3
NURS 801	Health Care Systems: Policy and Politics	3
NURS 806	Evidence-Based Nursing Practice and Outcomes of Care	3
NURS 824	Advanced Pathophysiology II	2
NURS 826	Evidence-Based Nursing Project I	2
NURS 828	Evidence-Based Nursing Project II	2
NURS 901	Organizational Systems and Leadership	3
NURS 902	Population and Social Determinants of Health	3
<b>Specialization Courses</b>		
NURS 728	Advanced Practice Technology and Skills	3
NURS 803	FNP Primary Care I	3
NURS 804	FNP Primary Care Practicum I	4
NURS 830	FNP Management and Clinical Application I	1
NURS 838	FNP Advanced Practice Role I	1
NURS 903	FNP Primary Care II	3

NURS 904	FNP Primary Care Practicum II	4
NURS 905	FNP Management and Clinical Application II	2
NURS 906	Transition to FNP Advanced Practice Role II	1
NURS 952	Advanced Nursing Practice Preceptorship	3
Select one Graduate Nursing Elective		3
<b>Capstone Courses</b>		
NURS 956	Practice Management	2
NURS 959	Evidence-Based Nursing Project III	3
NURS 960	Residency	6
Total Credit Hours		74

### Elective Courses

Elective coursework is available in many topic areas, including education, diabetes, human lactation, dermatology and low back pain. Students should see their advisor for assistance with elective choices.

### DNP Project

Students complete an evidence-based project. Students work collaboratively with at least one graduate nursing faculty member who is chairperson of their committee and one other graduate faculty member to identify an evidence-based practice problem and plan the implementation to address the problem. Successful defense of the evidence-based project proposal is the expected outcome within the Evidence-Based Project III course. After successful completion and defense of the Evidence-Based Project III proposal, the candidate may enroll in residency hours. The residency allows the student to complete/disseminate the results of the project and develop a portfolio documenting practice scholarship. The residency hours may be taken in 2-, 4- or 6-hour increments and may be repeated until requirements are met. The candidate completes an oral defense of the project at the end of the residency.

### Applied Learning

Students in the DNP FNP program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing all coursework culminating with the DNP Project. This evidence-based project stems from a series of courses and practicum work and is finalized and defended during the NURS 960 residency course.

## DNP in Nursing - Psychiatric/Mental Health Nurse Practitioner (PMHNP)

### Admission

- An approved graduate-level statistics course taken within the last six years;
- A Bachelor of Science in Nursing from a nationally accredited school (NLN or CCNE);
- A GPA of 3.000 or higher in the following areas:
  - All undergraduate coursework
  - All undergraduate nursing courses
  - Any graduate-level courses taken
  - The following four science courses taken with an overall GPA of at least 3.000 and no grade that generates less than 2.000 credit points per credit hour in any one course: anatomy/physiology, microbiology, pathophysiology and pharmacology
- One application must be submitted to the Graduate School. The application must be submitted by May 1 (fall admission only);

5. All students will request entrance to a specific specialization upon application;
6. Evidence of license as a registered nurse in *Kansas*;
7. Coverage by professional and general liability insurance. CNS and NP students must have NP student coverage prior to enrollment in practicum coursework. Minimum coverage required: \$1,000,000 single incident/\$3,000,000 aggregate for both professional and general liability;
8. Computer literacy is an expectation of the graduate nursing program. Skills should include: word processing, email, file attachments and internet searches. If courses require Blackboard, students are highly encouraged to complete the Blackboard orientation. Students may elect to take PC 105, or another basic computer skills course, to fulfill the computer literacy expectation; and
9. Technical standards must be met.

### Program Requirements

Course	Title	Hours
<b>Core and Specialization Preparatory Courses</b>		
NURS 701	Advanced Health Assessment	2
NURS 702	Advanced Health Assessment Laboratory	1
NURS 703	Theoretical Foundations of Advanced Nursing Practice	3
NURS 715	Advanced Nursing Practice Roles	1
NURS 793	Advanced Pathophysiology I	4
NURS 795A	Applied Drug Therapy I	3
NURS 795B	Applied Drug Therapy II	3
NURS 801	Health Care Systems: Policy and Politics	3
NURS 806	Evidence-Based Nursing Practice and Outcomes of Care	3
NURS 824	Advanced Pathophysiology II	2
NURS 826	Evidence-Based Nursing Project I	2
NURS 828	Evidence-Based Nursing Project II	2
NURS 901	Organizational Systems and Leadership	3
NURS 902	Population and Social Determinants of Health	3
<b>Specialization Courses</b>		
NURS 728	Advanced Practice Technology and Skills	3
NURS 854	Diagnosis and Management of Mental Disorders <sup>1</sup>	3
NURS 819	Foundations of Psychiatric/Mental Health Nursing	3
NURS 822	Psychiatric/Mental Health Nursing Practicum I	4
NURS 856	Transition to PMHNP Advanced Practice Role I	1
NURS 921	Complex Issues in Psychiatric/Mental Health Nursing	3
NURS 922	Psychiatric/Mental Health Nursing Practicum II	4
NURS 923	Transition to PMHNP Advanced Practice Role II	1

NURS 952	Advanced Nursing Practice Preceptorship	3
Select one Graduate Nursing Elective		3
<b>Capstone Courses</b>		
NURS 956	Practice Management	2
NURS 959	Evidence-Based Nursing Project III	3
NURS 960	Residency	6
Total Credit Hours		74

<sup>1</sup> Must be taken prior to NURS 819.

### Elective Courses

Elective coursework is available in many topic areas, including education, diabetes, human lactation, dermatology and low back pain. Students should see their advisor for assistance with elective choices.

### DNP Project

Students complete an evidence-based project. Students work collaboratively with at least one graduate nursing faculty member who is chairperson of their committee and one other graduate faculty member to identify an evidence-based practice problem and plan the implementation to address the problem. Successful defense of the evidence-based project proposal is the expected outcome within the Evidence-Based Project III course. After successful completion and defense of the Evidence-Based Project III proposal, the candidate may enroll in residency hours. The residency allows the student to complete/disseminate the results of the project and develop a portfolio documenting practice scholarship. The residency hours may be taken in 2-, 4- or 6-hour increments and may be repeated until requirements are met. The candidate completes an oral defense of the project at the end of the residency.

### Applied Learning

Students in the DNP PMHNP program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing all coursework culminating with the DNP Project. This evidence-based project stems from a series of courses and practicum work and is finalized and defended during the NURS 960 residency course.

## DNP in Nursing - Individual/Family Focus Admission

1. An approved graduate-level statistics course taken within the last six years;
2. A nursing master's degree from an accredited school, with a GPA of 3.250 or higher in all master's work;
3. Individual/Family focus applicants are required to:
  - a. Present proof of APRN licensure in Kansas and/or other authorized online states, and
  - b. Present proof of, or eligibility for, national certification as a nurse practitioner or clinical nurse specialist;
4. Some latitude may be given in the following GPA requirements on an individual basis (3.000 or higher in the following areas):
  - a. All undergraduate coursework;
  - b. All undergraduate nursing courses;
  - c. Any graduate-level courses taken;
  - d. The following four science courses taken with an overall GPA of at least 3.000 and no grade that generates less than 2.000 credit points per credit hour in any one course: anatomy/physiology, microbiology, pathophysiology and pharmacology;

- One application must be submitted to the Graduate School by October 15 (spring admission only); and
- Admission for postmaster's applicants will be to the practice specialization area in which their nursing master's degrees were completed.

### Program Requirements

Course	Title	Hours
<b>Core and Specialization Preparatory Courses</b>		
NURS 824	Advanced Pathophysiology II	2
NURS 899A	Health Care System Policy and Politics Update	1
NURS 899B	Evidence-Based Nurse Practitioner Update	1
NURS 899C	Management of Care Update	2
NURS 901	Organizational Systems and Leadership	3
NURS 902	Population and Social Determinants of Health	3
NURS 924	Advanced Pharmacotherapy for Advanced Practice Nursing	3
Select one Graduate Nursing Elective		3
<b>Capstone Courses</b>		
NURS 956	Practice Management	2
NURS 959	Evidence-Based Nursing Project III	3
NURS 960	Residency	6
Total Credit Hours		29

### DNP Project

Students complete an evidence-based project. Students work collaboratively with at least one graduate nursing faculty member who is chairperson of their committee and one other graduate faculty member to identify an evidence-based practice problem and plan the implementation to address the problem. Successful defense of the evidence-based project proposal is the expected outcome within the Evidence-Based Project III course. After successful completion and defense of the Evidence-Based Project III proposal, the candidate may enroll in residency hours. The residency allows the student to complete/disseminate the results of the project and develop a portfolio documenting practice scholarship. The residency hours may be taken in 2-, 4- or 6-hour increments and may be repeated until requirements are met. The candidate completes an oral defense of the project at the end of the residency.

### Applied Learning

Students in the DNP individual/family focus program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing all coursework culminating with the DNP Project. This evidence-based project stems from a series of courses and practicum work and is finalized and defended during the NURS 960 Residency course.

## MSN in Nursing - Nursing Education

### Admission

In addition to the general university requirements for admission to graduate studies (see the Admission to Graduate Study section for full details), the School of Nursing requires:

- A bachelor's degree with a major in nursing from a nationally accredited (NLN or CCNE) school;
- Admission to the Graduate School at Wichita State University;

- A cumulative grade point average of 3.000 or higher in the following area: the last 60 credit hours of nursing undergraduate coursework;
- School of Nursing approval;
- Coverage by professional and general liability insurance, in effect during practicums, in the minimum amount of \$1/3 million individual/aggregate for each, to be renewed annually;
- One year of nursing practice following professional licensure is highly recommended but not required;
- Computer literacy and electronic database literature searching skills;
- A background check is required. The School of Nursing can provide details for obtaining the background check;
- Evidence of meeting the technical standards as identified by the School of Nursing graduate program;
- Evidence of registered nurse licensure in the state for which they practice. WSU is accepting applications from anyone living in the state of Kansas, and the number of states from which WSU is authorized to admit is rapidly increasing. Check with WSU's Office of Online Learning (<http://wichita.edu/online/>)<sup>1</sup> to see if WSU is approved to provide distance education in a specific state;
- One application must be submitted to the Graduate School. The application must be submitted by May 1 (fall admission only).

<sup>1</sup> Link opens new window.

### Program Requirements

All students must identify their concentration through the school of nursing admission process and take all required courses with a minimum total of 36 credit hours for leadership/administration, and a minimum of 37 credit hours for education MSN degrees. Students must complete a capstone experience within the final two semesters in order to graduate from the program. This requirement is met by completing NURS 812 for leadership/administration and NURS 872 for education.

Course	Title	Hours
<b>Core Curriculum</b>		
NURS 703	Theoretical Foundations of Advanced Nursing Practice	3
NURS 801	Health Care Systems: Policy and Politics	3
NURS 806	Evidence-Based Nursing Practice and Outcomes of Care	3
NURS 826	Evidence-Based Nursing Project I	2
NURS 871	Leadership and Emerging Issues in Nursing	3
Select one graduate level statistics course		3
<b>Nursing Education (Direct Care)</b>		
NURS 793	Advanced Pathophysiology I	4
NURS 795A	Applied Drug Therapy I	3
NURS 701	Advanced Health Assessment	2
NURS 702	Advanced Health Assessment Laboratory	1
NURS 723	Foundations of Nursing Education	3
NURS 757	Teaching Strategies for Nursing Education	3
NURS 724	Nursing Education Practicum	2

NURS 872	Clinical Focus Education Practicum	2
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Total Credit Hours 37

Please contact the nursing graduate program office for the most recent information regarding curriculum.

### Applied Learning

Students in the MSN nursing education program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing all coursework culminating with NURS 724.

## MSN in Nursing - Nursing Leadership and Administration

### Admission

In addition to the general university requirements for admission to graduate studies (see the Admission to Graduate Study section for full details), the School of Nursing requires:

1. A bachelor's degree with a major in nursing from a nationally accredited (NLN or CCNE) school;
2. Admission to the Graduate School at Wichita State University;
3. A cumulative grade point average of 3.000 or higher in the following area: the last 60 credit hours of nursing undergraduate coursework;
4. School of Nursing approval;
5. Coverage by professional and general liability insurance, in effect during practicums, in the minimum amount of \$1/3 million individual/aggregate for each, individual/aggregate, to be renewed annually;
6. One year of nursing practice following professional licensure is highly recommended but not required;
7. Computer literacy and electronic database literature searching skills;
8. A background check is required. The School of Nursing can provide details for obtaining the background check;
9. Evidence of meeting the technical standards as identified by the School of Nursing graduate program;
10. Evidence of registered nurse licensure in the state for which they practice. WSU is accepting applications from anyone living in the state of Kansas, and the number of states from which WSU is authorized to admit is rapidly increasing. Check with WSU's Office of Online Learning (<http://wichita.edu/online/>)<sup>1</sup> to see if WSU is approved to provide distance education in a specific state;
11. One application must be submitted to the Graduate School. The application must be submitted by May 1 (fall admission only).

<sup>1</sup> Link opens new window.

### Program Requirements

All students must identify their concentration through the school of nursing admission process and take all required courses with a minimum total of 36 credit hours for leadership/administration, and a minimum of 37 credit hours for education MSN degrees. Students must complete a capstone experience within the final two semesters in order to graduate from the program. This requirement is met by completing NURS 812 for leadership/administration and NURS 872 for education.

Course	Title	Hours
<b>Core Curriculum</b>		
NURS 703	Theoretical Foundations of Advanced Nursing Practice	3
NURS 801	Health Care Systems: Policy and Politics	3
NURS 806	Evidence-Based Nursing Practice and Outcomes of Care	3
NURS 826	Evidence-Based Nursing Project I	2
NURS 871	Leadership and Emerging Issues in Nursing	3
Select one graduate level statistics course		3
<b>Nursing Leadership and Administration (Indirect Care)</b>		
PHS 642	Financing Health Care Services	3
PHS 812	Health Care Policy and Administration	3
NURS 812	Nursing and Health Care Systems Administration Practicum	4
PHS 621	Supervisory Management in Health Care Organizations	3
PHS 848	Concepts of Quality in Healthcare	3
Elective (PHS 833 or other course collaboratively decided on with advisor)		3
Total Credit Hours		36

Please contact the nursing graduate program office for the most recent information regarding curriculum.

### Applied Learning

Students in the MSN nursing leadership and administration program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing all coursework culminating with NURS 812.

## Dual/Accelerated RN to MSN

### Program Requirements

The RN to MSN Dual/Accelerated Program offers the opportunity for outstanding registered nurse (RN) undergraduate students, who are admitted to and enrolled in the BSN program at WSU, to advance their careers in a significant way by pursuing the BSN and MSN degrees in a coordinated program that provides the student with the high level of academic advising necessary for program success. A cumulative grade point average (GPA) of 3.250 or higher is required at the time of admission to the BSN program and must be maintained throughout the BSN and MSN programs.

*Note:* Significant curriculum developments that affect the requirements for this program are anticipated. Contact the School of Nursing for the latest information or to speak with an academic advisor.

## School of Oral Health

The School of Oral Health consists of the department of dental hygiene, and the advanced education in general dentistry residency program. The School of Oral Health offers degree programs leading to a Bachelor of Science in dental hygiene, and a postdoctoral certificate in advanced education in general dentistry.

For more information on the postdoctoral certificate, contact Dean Elledge, program director, at 316-978-8350.



# Innovation and Design, College of

Jeremy Patterson, dean

316-WSU-3010

College of Innovation and Design Website (<http://wichita.edu/iii/>)<sup>1</sup>

## Overview

The College of Innovation and Design at Wichita State University (WSU) administers and supervises interdisciplinary degrees, certificates and other credentials (e.g., badges). The institute provides opportunities for faculty across campus to come together in a collaborative environment to develop/participate in academic programs and related research and creative projects in support of interdisciplinarity.

The primary goals of the College of Innovation and Design are to encourage independent scholarship and to develop competence in collaborative research and creative activity. Students are expected to master special fields as well as to develop appropriate methods of inquiry for future professional growth.

## Program Representatives to the College

The College of Innovation and Design works closely with individual program areas to ensure that program operations function in compliance with university policies and regulations. As part of this process, and on a voluntary basis, a faculty member can be recommended by his or her department chair to the college dean to serve as the program representative to the college in matters of interdisciplinary education. Although the nature of responsibilities varies throughout program areas, they have a primary role in working with students and faculty in their academic programs. As a standard of expectation, program representatives are charged with the responsibility for overseeing the evaluation of applications for admission, and the transmittal of recommendations for admission, academic performance, degree completion and exceptions to graduate and undergraduate regulations. Program representatives also have a primary role in coordinating information between their programs and the college office, working with their departmental chairs or other administrators in maintaining the quality and viability of their graduate programs, and serving as the local agent for the faculty in their program areas.

<sup>1</sup> Link opens new window.

## Programs in the College of Innovation and Design

- MID - Master of Innovation Design (p. 201)

## College of Innovation and Design Courses

- Innovative Design (ID) (p. 354)

## MID - Master of Innovation Design

### Application Procedures

To be considered for admission, applicants will be required to apply online beginning at the Graduate School application website (<http://wichita.edu/gradapplication/>)<sup>1</sup>. The online application will require uploading copies of official transcripts of all schools previously attended, as well as submitting the nonrefundable application fee.

Applicants are given the opportunity to include in their application any credentials they believe represent their accomplishments and help explain why they wish to join the MID program. Additional application materials will be uploaded through the online application portal, and may include but are not limited to:

- Documentation of prior learning or experience relevant to design;
- Examples of prior design work in whatever format best showcases that work (e.g., a portfolio of artwork);

- A video of a performance;
- Links to software applications;
- Descriptions of products developed;
- Published articles or reports;
- A resume; and
- A personal essay.

A personal interview is scheduled with the admission committee if minimum qualifications are met as determined by Graduate School policy.

An admissions committee consisting of faculty from all of WSU's existing colleges reviews student applications. In reviewing applications, the admissions committee looks for the student's level of commitment to completing a master's degree, interest in learning design thinking skills, and whether there is a fit between the student's goals and the resources of the MID faculty. If admitted, a faculty advisor is appointed and assists the student in developing a plan of study (see Requirements). Deadlines for applications are as follows:

Semester	Date
Fall admission:	June 1
Spring admission:	September 1
Summer admission:	February 1

Questions regarding application procedures should be directed to:

Graduate School  
Wichita State University  
1845 Fairmount  
Wichita KS 67260-0004  
USA  
316-978-3095  
Graduate School Website (<http://wichita.edu/gradschool/>)<sup>1</sup>

<sup>1</sup> Link opens new window.

## Plan of Study Options

The MID degree requires the completion of a plan of study, approved by the student's advisor, which must be filed within the first 12 credit hours of graduate coursework. Two options are available:

- The thesis option requires a minimum of 24 credit hours of coursework plus a minimum of 6 credit hours of thesis; and
- The directed project option requires a minimum of 27 credit hours of coursework plus a minimum of 3 credit hours of directed project.

## Program Requirements

The MID program consists of at least 30 credit hours (for both the thesis and nonthesis options), including the following:

Course	Title	Hours
<b>Required Courses</b>		
FA 710	Seminar in Creativity and Innovation <sup>1</sup>	3
ID 752	Product, Service, and Process Prototyping	3

### Electives

Electives are customized for each student in consultation with the student's advisors and based on the student's design goals. Courses are selected from existing WSU graduate courses.<sup>2</sup>

### Select one of the following plan of study options

Major Project Option<sup>3</sup>

Select a minimum of 27 credit hours of coursework

Select a minimum of 3 credit hours of directed project

*Thesis Option*<sup>4</sup>

Select a minimum of 24 credit hours of coursework

Select a minimum of 6 credit hours of thesis

<sup>1</sup> These courses are required and align with the four design thinking capabilities – creativity, communication, entrepreneurship and prototyping.

<sup>2</sup> Some existing WSU graduate courses that relate to collaborative design include:

- Special Investigations in Psychology
- Human Factors Psychology
- Professional Practices in Graphic Design

<sup>3</sup> Completing a major project requires the development of a portfolio, patent application, process or prototype.

<sup>4</sup> Completing a thesis requires a thesis defense in accordance with WSU Graduate School policies.

Students also complete Professional and Scholarly Integrity Training (PSIT) and satisfy other general graduate degree requirements. An optional 0 credit hour practicum is available to allow students to network with other MID students and faculty. No internship is required.

***Applied Learning***

Students in the MID – Master of Innovative Design program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by:

- **For students completing the thesis option:** Completing at least 6 credit hours of ID 842 Thesis.
- **For students completing the project option:** Completing 3 credit hours of ID 841 Project. A major project requires the development of a portfolio of work, patent application, process, business plan or prototype.

## Liberal Arts and Sciences, Fairmount College of

**Andrew Hippisley, dean**

**200 Lindquist Hall • 316-WSU-6659**

Fairmount College of Liberal Arts and Sciences Webpage (<http://wichita.edu/las/>)<sup>1</sup>

**Brien Bolin, associate dean**

**David Eichhorn, associate dean**

**Cheryl Miller, senior assistant dean**

### Department and Program Contacts

**Anthropology**, 316-978-3195 — Peer Moore-Jansen, *chairperson*;  
Crystal Dozier, *graduate coordinator*

**Biological Sciences**, 316-978-3111 — William Hendry III,  
*chairperson*; F. Leland Russell, *graduate coordinator*

**Chemistry**, 316-978-3120 — Doug English, *chairperson*; Dennis H.  
Burns, *graduate coordinator*

**Communication, Elliott School of**, 316-978-3185 — Jeffrey Jarman,  
*Kansas Health Foundation Distinguished Director*; Lisa Parcell,  
*graduate coordinator*

**Criminal Justice, School of**, 316-978-7200 — Andi Bannister,  
*director*; Breanna Boppre, *graduate coordinator*

**Earth, Environmental and Physical Sciences**, 316-978-3140 — Bill  
Bischoff, *graduate coordinator*

**English**, 316-978-3130 — Jean Griffith, *chairperson*; Rebecca  
Bechtold, *graduate coordinator*; Darren Defrain, *writing program  
director*; Samuel Taylor, *creative writing program director and  
graduate coordinator*

**Ethnic Studies**, 316-978-7200 — Chinyere Okafor, *program director*

**Geology**, 316-978-3140 — William Parcell, *chairperson*

**History**, 316-978-3150 — Jay Price, *chairperson*; Robin Henry,  
*graduate coordinator*

**Mathematics**, 316-978-3160 — Ziqi Sun, *chairperson*; Thalia Jeffres,  
*graduate coordinator*

**Modern and Classical Languages and Literatures**, 316-978-3180 —  
Wilson Baldrige, *chairperson*; Rocio Del Aguila Carreno, *graduate  
coordinator*

**Philosophy**, 316-978-3125 — Noell Birondo, *chairperson*

**Physics**, 316-978-3190 — Holger Meyer, *director*; Mathew Muether,  
*graduate coordinator*

**Political Science**, 316-978-7130 — Neal Allen, *chairperson*

**Psychology**, 316-978-3170 — Rhonda K. Lewis, *chairperson*; C.  
Brendan Clark, *graduate coordinator*

**Public Affairs, Hugo Wall School of**, 316-978-6536 — Melissa  
Walker, *interim director*

- **Environmental Finance Center**, 316-978-7240 — Tonya  
Bronleewe, *director*
- **Public Administration**, 316-978-7240 — Samuel Yeager,  
*graduate coordinator*

- **Public Affairs Student Services**, 316-978-7240 — Bethany  
Kennedy

**Religion**, 316-978-3108 — Rannfrid Thelle, *director*

**Social Work, School of** 316-978-7250 — Kyoung Lee, *director*;  
Shaunna Millar, *MSW program director*

**Sociology**, 316-978-3280 — Jodie Hertzog, *chairperson*; Jennifer  
Pearson, *graduate coordinator*

**Women's Studies**, 316-978-7164 — Chinyere Okafor, *chairperson*

### Graduate Certificate Contacts

**City/County Management**, 316-978-7240 — Sam Yeager, *graduate  
coordinator*; Bethany Kennedy, *student services*

**Economic Development**, 316-978-7240 — Sam Yeager, *graduate  
coordinator*; Bethany Kennedy, *student services*

**English Literature and Composition Pedagogy**, 316-978-3130 —  
Rebeccah Bechtold, *graduate coordinator*

**Great Plains Studies**, 316-978-7792 — Jay Price, *certificate  
coordinator*

**Hispanic Cultural Studies**, 316-978-3180 — Rocio del Aguila-  
Carreno, *graduate coordinator*

**Mathematical Foundations of Data Analytics**, 316-978-3160 — Tom  
Delillo, *graduate coordinator*

**Museum Studies**, 316-978-3195 — Rachele Meinecke, *director of  
Holmes Museum*

**Nonprofit Management**, 316-978-7240 — Sam Yeager, *graduate  
coordinator*; Bethany Kennedy, *student services*

**Public Finance**, 316-978-7240 — Sam Yeager, *graduate coordinator*;  
Bethany Kennedy, *student services*

**Space Science**, 316-978-3190 — Nick Solomey, *graduate coordinator*

**Spanish for the Professions**, 316-978-3180 — Rocio del Aguila-  
Carreno, *graduate coordinator*

<sup>1</sup> Link opens new window.

## Anthropology

The anthropology department offers a course of study leading to the Master of Arts (MA) degree, and a graduate certificate in museum studies.

### Programs in Anthropology

- MA in Anthropology (p. 203)
- Certificate in Museum Studies (p. 205)

### Courses in Anthropology

- Anthropology (ANTH) (p. 262)

## MA in Anthropology Admission

Admission to the MA program in anthropology requires: (1) the completion of a minimum of 15 credit hours in anthropology to include courses in the history and theory of anthropology and in the three main subdivisions of the discipline; (2) an introductory statistics course

(PSY 301, SOC 313, STAT 370 or equivalent); and (3) a grade point average of 3.250 (on a 4.000 scale).

The priority deadline for application is February 1 for fall and October 1 for spring. Prospective students are required to submit a written statement of purpose that addresses their intended area(s) of specialization. Applications will be reviewed by the entire faculty and those meeting the admission requirements may be accepted if there is a faculty member specializing in the applicant's area of interest and available to serve as graduate advisor.

Applicants will be notified of the faculty's decision by March 15 for fall admission or November 15 for spring admission under the priority deadline. Students deficient in any of the course prerequisites (1 and 2 above) or GPA requirements may be admitted under conditional or probationary status pending removal of the deficiencies.

Application deadlines for financial award consideration are February 1 for fall and October 1 for spring. Awards will continue until funds are depleted.

### Program Requirements

Only graduate students may enroll in 700- and 800-level courses for graduate credit. All graduate students who have been required to take ANTH 647 must successfully complete this requirement prior to enrolling in ANTH 746. Graduate enrollment in ANTH 770 requires successful completion of the corresponding core course of the particular area of focus, that is, ANTH 736 or ANTH 746 or ANTH 756. To enroll in a graduate seminar (ANTH 801, ANTH 802, ANTH 820 or ANTH 837), a student must have full graduate standing and 6 credit hours of graduate coursework in anthropology, including the core course (ANTH 736, ANTH 746 or ANTH 756) in the same subfield as the seminar. Students must complete seminars in two subfields. To enroll in ANTH 871–ANTH 872, ANTH 873–ANTH 874 or ANTH 875–ANTH 876, graduate students must have successfully completed ANTH 736, ANTH 746 and ANTH 756 and have their final project (thesis, project or internship) approved by their committee.

A master's degree in anthropology requires 36 credit hours of graduate study, of which 60 percent (22 credit hours) must be numbered 700 or above.

Course	Title	Hours
<b>Core Courses</b>		
ANTH 736	Advanced Studies in Archaeology and Ethnohistory	3
ANTH 746	Advanced Studies in Cultural Anthropology	3
ANTH 756	Advanced Studies in Biological Anthropology	3
Select two of the following seminars:		6
ANTH 801	Seminar in Archaeology	
ANTH 802	Methods In Anthropology	
ANTH 820	Seminar in Biological Anthropology	
ANTH 837	Seminar in Cultural Anthropology	
Take two semesters of the following:		2
ANTH 847	Colloquium in Anthropology	
<b>Tracks</b>		
Select a track (see details below)		4
<b>Electives</b>		

Select 15 credit hours of electives. Students interested in multidisciplinary topics may, with the consent of their committee, count up to 12 credit hours of graduate-level credit from other disciplines.

Total Credit Hours 36

### Track1

Track 1 requires satisfying all the general requirements listed above and the following:

Course	Title	Hours
Completion of written comprehensive exams		
ANTH 875	Thesis	2
ANTH 876	Thesis	2
Presentation of a thesis		
Total Credit Hours		4

Comprehensive exams are graded by all full-time teaching faculty in the department.

### Track2

Track 2 requires satisfying all the general requirements listed above and the following:

Course	Title	Hours
Completion of a project approved by the student's project committee		
Presentation of a project report		
ANTH 873	Advanced Projects in Anthropology	2
ANTH 874	Advanced Projects in Anthropology	2
Total Credit Hours		4

### Track3

Track 3 requires satisfying all the general requirements listed above and the following:

Course	Title	Hours
Completion of an internship approved by the student's internship committee		
Presentation of an internship report		
ANTH 871	Internship in Anthropology	2
ANTH 872	Internship in Anthropology	2
Total Credit Hours		4

### AllTracks

Students in all tracks are required to form a thesis/project/internship committee of at least two full-time graduate teaching faculty from within the anthropology department and at least one graduate faculty from another department. This committee must be formed prior to, or upon the completion of, 18 credit hours of graduate study. Students must present to their committee a proposal for their thesis, project or internship. The committee approves these proposals and also the oral defense of all theses, project reports and internship reports. Theses, project reports and internship reports must be submitted to the committee at least 10 working days prior to the date of the actual defense.

All students who present a thesis, project or internship must pass an oral defense of their effort. A foreign language examination is contingent upon the nature of the thesis topic.

### Examinations

Students in Track 1 are required to take a written comprehensive exam. Students must have completed a minimum of 15 credit hours of graduate work in anthropology, including ANTH 736, ANTH 746 and ANTH 756, to be eligible. To initiate the comprehensive exam, students

are required to form an exam committee in consultation with their thesis chair. This committee must contain at least four faculty members from the Department of Anthropology: the thesis chair, another member of the same subdiscipline, and two faculty members representing the other two subdisciplines. The exam is a set of three prompts from each one of the three disciplines (archaeology, biological anthropology and cultural anthropology) that intersect with the students' interests and thesis expectations. Students can take the exam over the summer or winter break and are required to meet with their committee before the finals week of the preceding semester. These exams are open-note, take-home academic research manuscripts to be completed over the summer or winter break. The exam submission is due on the Friday of the first week of the semester directly following the break with the results being communicated and forms submitted two weeks after the submission date. The exam results in a pass/fail grade. Students who pass may continue in the thesis track and start their proposal. Students who do not pass may continue in the MA program under the project or internship track.

### Applied Learning

Students in the MA in anthropology are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing the thesis (ANTH 875 and ANTH 876), project (ANTH 873 and ANTH 874) or internship (ANTH 871 and ANTH 872). All three graduate program tracks offer students a broad variety of applied professional research experiences.

## Certificate in Museum Studies

This interdisciplinary program prepares students for careers in the museum field. Drawing on courses from anthropology; the School of Art, Design and Creative Industries (SADCI); nonprofit management (public administration); history; and education, students gain an overview of museum practice including administration, collections, exhibits and presentation, and education (such as exhibition, workshops, interpretation, guided tours and school groups). The advisory board periodically refines the content. There is one advisor for all students seeking the certificate program in museum studies. The advisory board designates this individual.

### Program Requirements

The program consists of 15 credit hours. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

To complete the certificate program, students take the following management-based core courses:

Course	Title	Hours
ANTH 606	Museum Methods	3
ANTH 607	Museum Exhibition	3
HIST 703	Museum Administration	3
PADM 725	Public Management of Human Resources	3
In addition, select 3 credit hours of practice that could include the following		3
PADM 870	Fundraising and Financial Management for Nonprofit Organizations	
HIST 519	Introduction to Local and Community History	

Internship/Independent Study	Under the guidance of the student advisor, students may fulfill this requirement by taking existing internship and/or independent study courses from any of the participating programs involved with museums in the community
Total Credit Hours	15

In addition, all students are encouraged to develop a portfolio of work products that may include, for example, exhibitions and publications.

For information and application procedures, please contact: Rachelle Meinecke, director, Lowell D. Holmes Museum, 316-978-3195.

## Biological Sciences

### Master of Science and Areas of Specialization

The Master of Science (MS) program offered by the department of biological sciences provides an advanced education with either a research thesis or nonthesis option. A variety of specializations in the broad areas of ecology, molecular biology, microbiology, cell biology and environmental biology are available. All incoming students are assigned to a temporary graduate advisor; typically by the end of the first semester, students choose a permanent graduate advisor and committee. The advisors work with the student to develop a plan of study that meets the student's educational goals.

### Programs in Biological Sciences

- MS in Biological Sciences (p. 205)

### Courses in Biological Sciences

- Biology (BIOL) (p. 270)

## MS in Biological Sciences

### Admission

Applicants must submit the online application and upload all required documents to the Graduate School by March 1 for fall semester admission, and by October 1 for spring semester admission. Graduate School application ([https://www.wichita.edu/academics/graduate\\_school/](https://www.wichita.edu/academics/graduate_school/)).<sup>1</sup> Admission as a full-standing student requires:

1. A baccalaureate degree in a life science-related discipline from an accredited university or college;
2. An overall grade point average of at least 2.750 (4.000 scale) for all previous college/university coursework;
3. A grade point average of at least 3.000 (4.000 scale) for all undergraduate biological sciences courses;
4. A one-page statement of purpose that addresses the student's areas of interest in biology;
5. Three letters of reference from science faculty; and
6. Acceptable score on the TOEFL, IELTS, or PTE-Academic for non-native speakers of English.

Students who do not meet requirements one through three but who wish to begin graduate coursework may qualify for conditional acceptance into a nondegree category.

<sup>1</sup> Link opens new window.

### Program Requirements

Students accepted into the MS program in biology may pursue either the thesis option or nonthesis option for their MS degree. All MS graduate students in biology must earn at least 16 credit hours from the

department of biological sciences. A maximum of 6 credit hours can be transferred from other institutions and a total of 9 credit hours can be from departments outside of biological sciences. All MS graduate students must enroll in BIOL 797 and give professional presentations in this course in two semesters. Even when graduate students are not enrolled in BIOL 797, attendance at departmental seminars is expected. All graduate students must complete the department of biological sciences' requirement for training in professional and scholarly integrity by the end of the student's first semester in the program.

### Thesis Option

Students selecting the thesis option must complete 30 credit hours of graduate coursework.

Course	Title	Hours
Select 30 credit hours of graduate coursework which must include:		
BIOL 797	Departmental Seminar	30
BIOL 890	Research (Up to 10 credit hours)	
BIOL 891	Thesis (Taken in the semester in which the student defends their thesis)	
Total Credit Hours		30

Students must complete an oral defense of their thesis prospectus and a presentation and oral defense of the results of their original research.

### Nonthesis Option

Students selecting the nonthesis option must complete 33 credit hours of graduate coursework.

Course	Title	Hours
Select 33 credit hours of graduate coursework which must include:		
BIOL 797	Departmental Seminar	33
4-6 credit hours from the following		
BIOL 890	Research	33
BIOL 781	Cooperative Education	
BIOL 781N	Internship in Biology	
Total Credit Hours		33

Nonthesis MS graduate students must successfully defend a capstone project that may consist of a library research project, participation in research in a faculty member's lab, a cooperative education experience, or an internship experience.

### Applied Learning

Students pursuing an MS in biological sciences are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by:

**Thesis option:** This requirement can be met by completion of BIOL 891.

**Nonthesis option:** Nonthesis graduate students are required to either conduct research in a university laboratory (BIOL 890) or participate in Cooperative Education (BIOL 781) or Internship in Biology (BIOL 781N) for 4-6 credit hours. The 4-6 credit hour requirement means that most nonthesis students are involved in this applied learning activity for two semesters.

## Chemistry

The department of chemistry at Wichita State offers courses of study leading to the Master of Science (MS) and the Doctor of Philosophy (PhD) degrees in the areas of biochemistry, analytical, inorganic, organic and physical chemistry.

### Programs in Chemistry

- PhD in Chemistry (p. 206)
- MS in Chemistry (p. 207)

### Courses in Chemistry

- Chemistry (CHEM) (p. 281)

## PhD in Chemistry

### Admission

To enroll in the graduate program in chemistry, students must follow the admission procedures required by the Graduate School. The chemistry department requires:

- Baccalaureate degree in chemistry with the following minimum subject requirements: one year general chemistry; one year organic, analytical, inorganic and physical chemistry; one semester biochemistry; one year physics and one year calculus;
- Grade point average of at least 3.000/4.000 (both overall and in chemistry);
- Two letters of recommendation from individuals familiar with the applicant's academic background;
- A one-page typed statement of goals and research interests; and
- Submission of test scores from the general GRE exam. The department strongly recommends test scores from the chemistry subject GRE as well.
- International students must have a minimum TOEFL score of 550 paper-based, or 79 internet-based, or an overall band score of 6.5 on the IELTS, or a score of 58 on the PTE-Academic.

Applicants whose transcripts do not explicitly list the chemistry courses which they have taken must submit an official description of the courses which comprise their chemistry degree. Students deficient in any of the requirements may be admitted conditionally provided they follow the specified procedures required to remove any deficiencies.

Applications are reviewed as completed throughout the year; however, all application materials required by the chemistry department must be submitted by April 1st for consideration for the following fall semester, and September 1st for consideration for the following spring semester.

### Assessment Exam Requirements for the PhD Degree

All entering Doctor of Philosophy students are required to take assessment exams in analytical, inorganic, organic, physical chemistry and biochemistry at the beginning of their first semester in the program. Students must receive a pass or remove deficiencies in four of the subject areas listed above within the first year in the program. Deficiencies may be removed by enrolling in an appropriate course designated by the graduate affairs committee and passing with a *B* or better grade. Assessment exams are given two times a year — fall and spring.

### Program Requirements

All PhD students are required to satisfactorily complete the Professional and Scholarly Integrity Training by the end of their first year in the program.

All PhD students are required to take 24 credit hours of graduate chemistry courses comprising core courses and focused courses.

Course	Title	Hours
<b>Core Courses</b>		
CHEM 715	Advanced Spectroscopy	3
CHEM 719	Modern Synthetic Methods	3
CHEM 721	Advanced Biochemistry	3

CHEM 722	Advanced Physical Chemistry	3
CHEM 734	Instrumental Methods for Research	3
<b>Focus Courses</b>		
Select two to three focused courses numbered above 701 and/or the following:		9
CHEM 717	Advanced Spectroscopy II	
Complete two enrollments in the following:		2
CHEM 700	Chemistry Seminar	
Enroll in the following each semester of the degree program:		4
CHEM 701	Chemistry Colloquium	
Select additional courses in consultation with major advisor and the department's graduate affairs committee		42
Total Credit Hours		72

Students must pass five cumulative examinations out of 12 attempts to remain in the program. During their fifth semester, students must develop and orally defend an original research proposal. After passing the cumulative exams and successfully defending the original research proposal, the student will have qualified as a candidate for the PhD in chemistry and must be enrolled in at least 2 credit hours of Research in Chemistry (CHEM 990) each semester for the duration of the program. The final requirement for the degree is the defense of a dissertation based on original research. Well-prepared entering students should be able to complete the requirements within four years.

### **Dissertation**

The dissertation is reviewed by a committee from the department, and an oral examination given by a faculty committee appointed by the Graduate School must be passed. Students must select a faculty member to be their research advisor by the beginning of their second semester in the graduate program.

Students in the PhD program in good standing, who have completed all required courses, have satisfactorily presented their departmental research seminar, have defended their creative research proposal, and have satisfied all other requirements for admittance to candidacy for the PhD degree, will upon request and approval by the student's committee be awarded the MS degree.

### **Applied Learning**

Students in the PhD program in chemistry are required to complete an applied learning or research experience to graduate from this program. This requirement can be met by successfully completing the dissertation. For students being awarded a Masters along the way to the PhD, this requirement does not require a thesis, but can be met by completion and defense of an independent proposal that is modeled after an NIH research proposal.

## **MS in Chemistry**

### **Admission**

To enroll in the graduate program in chemistry, students must follow the admission procedures required by the Graduate School. The chemistry department requires a baccalaureate degree in chemistry, a grade point average of at least 3.000/4.000 (both overall and in chemistry), two letters of recommendation from individuals familiar with the applicant's academic background, a one-page typed statement of goals and research interests, and submission of test scores from the general GRE exam. The department strongly recommends test scores from the chemistry subject GRE as well. International students must have a minimum TOEFL score of 550 paper-based, or 79 internet-based, or an overall band score of 6.5 on the IELTS, or a score of 58 on the PTE-Academic. Applicants whose transcripts do not explicitly

list the chemistry courses which they have taken must submit an official description of the courses which comprise their chemistry degree. Students deficient in any of the requirements may be admitted conditionally provided they follow the specified procedures required to remove any deficiencies.

Applications are reviewed as completed throughout the year, however, all application materials required by the chemistry department must be submitted by April 1st for consideration for the following fall semester, and September 1st for consideration for the following spring semester.

### **Assessment Exam Requirements for the MS Degree**

All entering Master of Science students are required to take assessment exams in analytical, inorganic, organic, physical chemistry and biochemistry at the beginning of their first semester in the program. Students must receive a pass or remove deficiencies in four of the subject areas listed above within the first year in the program. Deficiencies may be removed by enrolling in an appropriate course designated by the graduate affairs committee and passing with a *B* or better grade. Assessment exams are given two times a year — fall and spring.

### **Program Requirements**

All MS students are required to satisfactorily complete the Professional and Scholarly Integrity Training by the end of their first year in the program.

The MS degree in chemistry requires the completion of 30 credit hours, including the presentation of a thesis based on original research.

Course	Title	Hours
CHEM 890	Research in Chemistry	6
Select at least 15 credit hours in chemistry courses numbered above 701, including the following:		15
CHEM 734	Instrumental Methods for Research	
At least three of the graduate chemistry core courses (CHEM 715 – CHEM 722)		
CHEM 700	Chemistry Seminar	1
Enroll in the following each semester of the degree program:		2
CHEM 701	Chemistry Colloquium	
Select additional courses in consultation with major advisor and the department's graduate affairs committee		6
Total Credit Hours		30

### **Thesis**

The thesis is reviewed by a committee from the department, and an oral examination given by a faculty committee appointed by the Graduate School must be passed.

Students must select a faculty member to be their research advisor by the beginning of their second semester in the graduate program.

### **Applied Learning**

Students in the master's degree program in chemistry are required to complete an applied learning or research experience to graduate from this program. This requirement can be met by successfully completing the thesis.

## **Communication, Elliott School of Master of Arts in Communication, Areas of Emphasis**

The Master of Arts in communication degree program at Wichita State is designed to provide students with a multidisciplinary foundation in human communication that will serve a broad spectrum of interests

and needs in many fields of endeavor. The program is based upon integration and synthesis of academic resources in communication.

### Programs in the Elliott School of Communication

- MA in Communication (p. 208)

### Courses in the Elliott School of Communication

- Communication (COMM) (p. 306)

## MA in Communication

### Admission

In addition to the general Graduate School admission requirements, applicants for full-standing status must have a 3.000 GPA overall and must write a statement of purpose for pursuing the Master of Arts in communication. International students must score at least 600 paper-based, or 100 internet-based on the TOEFL, or a minimum overall band score of 7.5 on the IELTS, or a minimum score of 73 on the PTE-Academic and, if applying for a graduate teaching assistantship, must score a 28 or higher on the speaking portion of the internet-based TOEFL, or 55 on the SPEAK test.

### Program Requirements

The Master of Arts in communication requires 36 credit hours of coursework — 15 credit hours of core courses and 21 credit hours of electives.

Course	Title	Hours
<b>Program Core (Required) Courses</b>		
COMM 801	Introduction to Communication Research	3
COMM 803	Empirical/Quantitative Research Methodology in Communication	3
COMM 812	Contemporary Theories of Communication	3
Qualitative Methods: select two of the 3-credit 800-level qualitative methods courses offered by the department		6
<b>Other Courses</b>		
Students selecting the thesis option must take 6 credit hours of thesis; students selecting the project option will devote either 3 or 6 credit hours of directed study to the 36-credit-hour total		3-6
In addition to the required courses, students, with the advice and consent of their faculty advisor, must select courses to complete the plan of study, as discussed in the Graduate School section of this catalog. The plan of study will be individually designed to accommodate a student's background, interests and needs, and must include a minimum of 60 percent of their graduate hours at the 700–899 level		15-18
Total Credit Hours		36

### Examinations

Written comprehensive examinations will be administered to all candidates during the final semester of their degree program. In addition, students writing a thesis will present an oral defense of the thesis.

### Applied Learning

Students in the MA in communication program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing COMM 803 Empirical/Quantitative Research Methodology in Communication.

## Criminal Justice, School of

The School of Criminal Justice brings together the programs of criminal justice and ethnic studies to form a unique and diverse curriculum to better serve the needs of students to work in an ever-changing urban and global community. Additionally, the Midwest Criminal Justice

Institute (MCJI) and the Regional Community Policing Training Institute (RCPTI) provide opportunities to blend teaching, research and service. As a result, the School of Criminal Justice not only serves as a quality educational unit for students, but also functions as a research and service unit that assists with a broader range of needs identified in the community.

### Programs in Criminal Justice

- MA in Criminal Justice (p. 208)

### Courses in Criminal Justice

- Criminal Justice (CJ) (p. 297)

## MA in Criminal Justice

The Master of Arts in criminal justice (MACJ) at Wichita State University is housed in the School of Criminal Justice. It is one of the nation's oldest criminal justice graduate degree programs. Intended to advance learning beyond the more general undergraduate educational curriculum, the MACJ expands the knowledge base of both graduating seniors and the administrative capacity of working professionals to optimally perform in their chosen careers in criminal justice.

### Admission

In addition to the Graduate School admission requirements, applicants must submit:

1. Contact information for two people acquainted with the applicant's background and potential to serve as references; and
2. A brief autobiographical statement describing particular interests, experiences and goals related to academic and professional work in criminal justice.

Applicants are evaluated with respect to:

1. Undergraduate grade point average (a minimum GPA of 3.000 overall is required for consideration of admission to degree status);
2. Amount, type and scope of undergraduate preparation; and
3. Reference letters.

Final recommendation on a candidate's admission to the MACJ program is made to the Graduate School by the graduate coordinator of the criminal justice program.

Effective fall semester 2015, the Master of Arts in criminal justice may be completed as an option entirely online. For more information visit the criminal justice program's website (<http://wichita.edu/cjonline/>)<sup>1</sup>.

<sup>1</sup> Link opens new window.

### Program Requirements

Students pursuing the MA degree in criminal justice may follow either a thesis or nonthesis option. Both program options require a minimum of 36 credit hours.

Course	Title	Hours
<b>Core Curriculum</b> <sup>1</sup>		
CJ 802	Quantitative Methods for Public Sector Professionals	3
CJ 893	Seminar on the Application of Criminological Theory	3
CJ 894	Proseminar in Criminal Justice	3
CJ 897	Advanced Research Methods	3
<b>Electives</b>		
CJ 513	Violent Crime	

CJ 515	Sex Crimes
CJ 516	Profiling
CJ 517	Homicide Investigation
CJ 518	Criminal Justice and Crime in Film
CJ 551	Workshop
CJ 610	Correctional Counseling
CJ 641	Forensic Psychiatry
CJ 652	Juvenile Justice and Social Policy
CJ 692	Community Policing
CJ 781	Cooperative Education
CJ 783	Advanced Special Topics in Criminal Justice
CJ 784	Advanced Special Topic C J
CJ 796	Criminal Typologies
CJ 850	Workshop
CJ 853	Crime Prevention through Environmental Design
CJ 861	Police Administration
CJ 873	Advanced Criminal Law
CJ 874	Qualitative Methods
CJ 882	Individual Directed Study in Criminal Justice
CJ 895	Seminar in Policing
CJ 896	Seminar in Corrections
<b>Nonthesis/Thesis Option</b>	
Select one of the following options:	24
Nonthesis Option:	
Select 24 credit hours of electives.	
Thesis Option:	
Select 18 credit hours of electives, including 6 credit hours of Thesis.	
CJ 874	Qualitative Methods (recommended)
CJ 900	Thesis
Total Credit Hours	36

<sup>1</sup> All degree candidates are required to complete the core curriculum with a grade of *B-* or better in each course. All core courses should be completed in the first two semesters of study.

### Examinations

Students selecting the thesis option must pass an oral defense of the thesis.

### Applied Learning

Students in the MA in criminal justice program are required to complete an applied learning or research experience to graduate from this program. The requirement can be met by successfully completing CJ 897 Advanced Research Methods. Students are required to complete several modules that incorporate an experiential/learning module exercise.

## Earth, Environmental and Physical Sciences

Planet Earth consists of interacting systems — the lithosphere, biosphere, hydrosphere and atmosphere — which form the physical foundation of life on Earth and human societies. These systems are changing rapidly due to diverse human activities. The master's program in earth, environmental and physical sciences (EEPS) at Wichita State University offers the opportunity for multidisciplinary and interdisciplinary graduate education and research to investigate the consequences of human actions and to seek wise development

and use of the resources of our planet. The program combines the talents and expertise of faculty in the disciplines of geology, physics and environmental science, and supporting fields such as biology and chemistry. It is designed to train a new generation of scientists, professionals and educators who will be well equipped with general knowledge and skills in methodology, critical and creative thinking in scientific research, and advanced knowledge and skills in geology, environmental science or physics. Graduates will meet the requirements and challenges of the 21st century to become successful science educators, professionals in industry or government, and/or aspirants to PhD studies.

The EEPS program includes three interrelated disciplines: geology, environmental science and physics. Multidisciplinary and interdisciplinary education for a candidate in EEPS will be achieved through specially designed coursework, research and other learning opportunities. Four required courses (EEPS 700, EEPS 701, EEPS 702 and EEPS 721) will provide knowledge and skills in scientific methodology, research design, and scientific writing and presentation. Follow-up courses (e.g., EEPS 710) and discipline-specific graduate courses will enable students to master advanced knowledge and skills in the field chosen by the student; discipline-specific or interdisciplinary research projects will foster the student's ability to conduct independent research, make scientific presentations and prepare quality scientific manuscripts.

The program is coadministered by the departments of geology and physics. It offers a variety of options for students pursuing a master's degree in EEPS — thesis, nonthesis and internship. For example, by working on a project in a private company or government agency through internship, a student can gain first-hand experience in the professional workplace; likewise, by taking advanced courses in several fields, a student can broaden his or her scientific background to become a highly qualified science teacher.

### Programs in Earth, Environmental and Physical Sciences

- MS in Earth, Environmental and Physical Sciences (p. 209)

### Courses in Earth, Environmental and Physical Sciences

- Earth, Environmental and Physical Sciences (EEPS) (p. 327)

## MS in Earth, Environmental and Physical Sciences Admission

Applicants for admission to the EEPS master's program should have a bachelor's degree in any field of natural sciences. However, applicants with a bachelor's degree outside the field of natural sciences are also encouraged to apply for conditional admission. Motivated candidates can make up background deficiencies early in their EEPS study before gaining full-standing status in the program.

All applicants also need to meet the general admission requirements of the Graduate School, which can be found in the Admission to Graduate Study section of this catalog or at the Graduate School website (<http://wichita.edu/gradschool/>)<sup>1</sup>.

Upon admission, applicants need to consult with the graduate coordinator of EEPS to evaluate background deficiencies, if any, and to establish a plan of study that best suits the applicant's goals. A master's degree in EEPS requires satisfactory completion of coursework and/or research, which will ensure that students take advantage of the multidisciplinary/interdisciplinary nature of the program.

<sup>1</sup> Link opens new window.

### Program Requirements

Coursework must include at least 18 credit hours of 700–899 courses, among which at least 8 credit hours must be EEPS required courses (including 2 credit hours of EEPS 700). The required courses focus on methodologies, critical and creative thinking in scientific research, and issues common to geology, physics, environmental science and related disciplines. To further benefit from the interdisciplinary nature of the program, students are encouraged to take courses in different disciplines and other supporting courses.

To meet the requirements of differing career goals, students may choose a thesis, internship or nonthesis option for degree completion. The thesis and internship topic may be in geology, environmental science or physics; such activity may be interdisciplinary, involving two or more fields.

#### Thesis Option

Thesis research is recommended for students who will pursue PhD study or seek professional employment after graduation. Students choosing thesis research must present a research proposal to the EEPS faculty to ensure that the research has merit and can be completed in a reasonable period of time. After completing the written thesis, the student must give it a public oral defense.

Course	Title	Hours
<b>Required Courses</b>		
Take the following course twice:		2
EEPS 700	Technical Sessions	
EEPS 701	Computer Methods in Science	3
EEPS 702	Research Methods	1
EEPS 721	Current Issues in Global Environmental Science	3
<b>Additional Courses</b>		
Select 15 credit hours in additional courses 700 or above		15
<b>Thesis</b>		
Select a maximum of 6 thesis credit hours		6
Total Credit Hours		30

#### Internship Option

Students wishing to gain interdisciplinary and/or professional skills in the fields covered by the EEPS program can participate in applied and/or basic research internship projects with industry or government agencies. Enrollment in internship projects requires an approved proposal. Completion of an internship for graduation requires a formal oral presentation of the internship activity and a written report.

Course	Title	Hours
<b>Required Courses</b>		
Take the following course twice:		2
EEPS 700	Technical Sessions	
EEPS 701	Computer Methods in Science	3
EEPS 702	Research Methods	1
EEPS 721	Current Issues in Global Environmental Science	3
<b>Additional Courses</b>		
Select 18 credit hours in additional courses 700 or above		18
<b>Internship</b>		
Select a maximum of 6 internship credit hours		6
Total Credit Hours		33

### Nonthesis Option

This option is an alternative to thesis research or internship for degree requirements. Two plans of study are available under this option:

#### Plan A

Students are not required to take research courses, and a total of 36 credit hours is required. This plan is recommended for students who do not desire a career in industry or postsecondary education.

Course	Title	Hours
<b>Required Courses</b>		
Take the following course twice:		2
EEPS 700	Technical Sessions	
EEPS 701	Computer Methods in Science	3
EEPS 702	Research Methods	1
EEPS 721	Current Issues in Global Environmental Science	3
<b>Additional Courses</b>		
Select 27 credit hours in additional courses 700 or above		27
Total Credit Hours		36

#### Plan B

Students are required to take research courses and conduct research under the supervision of an EEPS faculty member. A faculty-reviewed, final report is required.

Course	Title	Hours
<b>Required Courses</b>		
Take the following course twice:		2
EEPS 700	Technical Sessions	
EEPS 701	Computer Methods in Science	3
EEPS 702	Research Methods	1
EEPS 721	Current Issues in Global Environmental Science	3
<b>Additional Courses</b>		
Select 21 credit hours in additional courses 700 or above		21
<b>Research</b>		
Select a maximum of 3 research credit hours		3
Total Credit Hours		33

### Applied Learning

Students in the MS in Earth, environmental and physical sciences program are required to complete an applied learning or research experience to graduate from this program. The requirement can be met by taking EEPS 700. Successful completion of this course serves as fulfillment of the university's applied learning/research experience requirement.

## English Language and Literature

### Master of Arts

The Master of Arts (MA) program in English equips graduate students with the knowledge and skills necessary both to the outstanding teacher and to the well-prepared candidate for further graduate study. The graduate committee of the department accordingly requires its master's candidates to follow a course of advanced study that leads to a comprehensive knowledge of English and American literature. Candidates are also given training in the principles of literary criticism and in the use of bibliographic tools so that they will have a general competence in criticism and research.

### Master of Fine Arts in Creative Writing

The degree program for the Master of Fine Arts (MFA) in creative writing places emphasis on the development of skills and understanding

in the practice of imaginative writing and upon related academic study. It is not exclusively a studio program; rather, it encourages the development of writers who are able, as the result of additional coursework in English, to demonstrate skills useful in teaching, editing and other related areas. A core of workshops and tutorials leads to a final writing project: a collection of fiction or poetry, a novel, or some other appropriate work. Flexibility is provided in academic coursework to allow for a variety of possible interests.

### Programs in English Language and Literature

- MA in English (p. 211)
- MFA in Creative Writing (p. 212)
- Dual/Accelerated Bachelor's to Master's Degree Program (p. 213)

### Certificates in English Language and Literature

- Certificate in English Literature and Composition Pedagogy (p. 213)

### Courses in English Language and Literature

- English (ENGL) (p. 332)

## MA in English

### Admission

Applicants must meet the general requirements of the Graduate School, with the additional requirement that they have a 3.000 grade point average in their previous work in English courses. The coordinator of graduate studies in English will then evaluate the applicant's transcript, prescribing additional undergraduate hours for those who have fewer than 24 credit hours in English and American literature or in other work acceptable to the department of English. Courses in freshman composition, grammar, teaching methods, journalism, speech, etc., may not be included in the required 24 credit hours. Exceptions may be made for outstanding students who have majored in related fields.

In addition to Graduate School application materials, applicants to the English MA program should submit a 500 word statement of purpose explaining their goals or reasons for pursuing an MA in English as well as their skills, accomplishments or experiences that suggest they will be able to succeed in the program. The English department Master of Arts program accepts applications for admission on an ongoing basis.

Applicants who have earned degrees at institutions in countries in which English is not the native language must score at least 600 paper-based, or 100 internet-based on the TOEFL (Test of English as a Foreign Language) Examination, or an overall band score of 7.5 on the IELTS, or a score of 73 on the PTE-Academic before being admitted to the MA degree program in English.

### Academic Advising

All MA candidates in English are advised by the graduate coordinator in English. The coordinator and student establish a plan of study that takes into account the student's interests and future vocational plans.

### Transfer of Credit

Students must complete 24 credit hours at Wichita State within the English department. If the credit to be transferred comes from a program in which the student took a graduate degree, the time limits imposed by the Graduate School on other transfers of credit will not apply. Credit for transfer courses will not count toward the required number of courses at the 700 level or above unless the transfer credit hours are of appropriate level from Kansas Board of Regents institutions.

### Language Requirement

Master's degree candidates in English may fulfill the department's foreign language requirements in any one of the following ways:

1. By submitting a transcript showing the completion with a grade of C- or better of at least 15 credit hours of undergraduate work in a single foreign language or the equivalent as defined by Fairmount College of Liberal Arts and Sciences.
2. By completing the required 15 credit hours of undergraduate work in a single foreign language.
3. By taking a test administered by the department of modern and classical languages and literatures in the elected foreign language, with a successful score determined by the English department.
4. By taking at WSU or submitting a transcript showing completion of 6 credit hours of linguistics with a grade of C- or better.

### Program Requirements

The MA degree requires 30 credit hours of coursework, including the successful completion of either the master's thesis (up to 6 credit hours) or master's portfolio (3 credit hours). The master's thesis is intended for students interested in an intensive, independent research experience, while the master's portfolio is intended for students interested in developing documents more reflective of the diverse work they have completed while enrolled in the degree program.

All students must complete the following core coursework:

- ENGL 700 Introduction to Graduate Study in English
- 12 credit hours in period courses in literary seminars: 6 credit hours must be in literature before the 20th century; 3 credit hours must be in literature after the 20th century; of the 12 credit hours, students must take at least one seminar in British and American literature each.

In addition to the above core requirements, thesis students select 9–12 credit hours in elective coursework chosen in consultation with the graduate coordinator and must complete 3–6 credit hours of the master's thesis (ENGL 890); a maximum of 6 credit hours of ENGL 890 can be applied toward the degree. Portfolio students select 12 credit hours in elective coursework chosen in consultation with the graduate coordinator and must complete 3 credit hours of the master's portfolio (ENGL 895); a maximum of 3 credit hours of ENGL 895 can be applied toward the degree.

ENGL 700 normally should be included in the student's first semester of graduate study. At least seven courses toward all degree plans must be at the 700 level or above. The remaining credit hours may be taken at any level 500 or above. Requests for exceptions to this rule may be granted by the graduate coordinator in special circumstances. Candidates completing 500- or 600-level English courses for graduate credit must satisfy a higher differential of performance relative to undergraduate students in the same courses, with the nature of this differential set by the professor. With graduate coordinator approval, courses with a minimum of 80 percent of the content meeting a requirement can occasionally be used to satisfy a requirement other than the one for which they are listed. No single course can be used to satisfy more than one requirement. A major author(s) course cannot be used to satisfy a period requirement. With approval of the graduate coordinator, a course can be repeated once for credit if at least 80 percent of the content is different. With graduate coordinator approval, one elective may be taken in another department or college, such as the College of Applied Studies.

**Applied Learning**

Students in the MA in English program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by taking ENGL 700 (3 credit hours) as part of their degree plans; they are also required to either complete the degree with ENGL 890 Master's Thesis (3-6 credit hours) or with ENGL 895 Master's Portfolio (3 credit hours), two capstone projects that emphasize an applied learning and/or research experience.

**MFA in Creative Writing****Admission**

Applicants must meet the general requirements of the Graduate School, with the additional requirement of a 3.000 grade point average in their previous coursework in English. The director of creative writing evaluates the applicant's transcript, prescribing additional undergraduate hours for those who have fewer than 24 credit hours of acceptable coursework in English. Courses in freshman composition, grammar, teaching methods, journalism, speech, etc. may not be included in the required 24 credit hours. Exceptions may be made for outstanding students who have majored in related fields. With the permission of the director of creative writing, gifted writers may study in the program as special students with no specific degree intentions. Priority deadline for application: February 1. Admission will be for fall semester only.

Applicants who earned their undergraduate degrees more than 10 years before their application for admission must be interviewed by the director of creative writing before they are admitted into the program.

Applicants who have earned their degrees in countries where English is not the native language must score at least 600 paper-based, or 100 internet-based on the TOEFL (Test of English as a Foreign Language) Examination or an overall band score of 7.5 on the IELTS or a score of 73 on the PTE-Academic before they may be admitted to the program.

**Degree Program Status**

Applicants who seek to be admitted with full standing in the degree program must submit a sample of original writing in literary fiction (approximately 20 pages) or poetry (about six poems), as well as three letters of recommendation and a sample of expository prose.

**Advising**

All MFA candidates in English are advised by the director of creative writing who will help the student establish a plan of study taking into account the student's interests and future vocational plans.

**Transfer of Credit**

A minimum of 24 of the total 48 credit hours required for the degree must be taken at Wichita State. No more than 24 hours of credit may be counted toward the degree from other graduate work taken at Wichita State or at another school. If the credit to be transferred comes from a program in which the student took a graduate degree, the time limits imposed by the Graduate School on transfer of credit will not apply.

**Program Requirements**

All MFA students are required to take ENGL 700. Teaching assistants must take ENGL 780 unless specifically exempted.

**Coursework**

The 48 credit hours of coursework are apportioned into two categories: required and elective courses.

Course	Title	Hours
<b>Required Courses</b>		
ENGL 700	Introduction to Graduate Study in English (or the equivalent, normally should be included in the student's first semester of graduate study)	3
Select a minimum of 3 credit hours per semester and up to a maximum of 12 credit hours of the following:		12
ENGL 801 or ENGL 805	Creative Writing: Fiction Creative Writing: Poetry	3
Select 3 credit hours of the following (with departmental consent, each course may be repeated for a maximum of 6 hours credit):		3
ENGL 712	Graduate Studies in Fiction	
ENGL 713	Graduate Studies in Poetry	
ENGL 714	Graduate Studies in Drama	
Select 3 credit hours of the following (with departmental consent, seminars may be repeated for a maximum of 12 hours credit):		3
ENGL 733	Seminar in Contemporary Literature	
ENGL 860	Graduate Seminar in Special Topics	
Or another suitable seminar in literature		
ENGL 875	MFA Final Writing Project	2-6
For purposes of enrichment, candidates must take at least 3 graduate credit hours in the humanities, fine arts or other discipline outside English. The choice is contingent upon the student's having the proper prerequisites		3
ENGL 780	Advanced Theory and Practice in Composition (Required for graduate teaching assistants unless specifically exempted)	3
<b>Electives</b>		
Select 15 elective credit hours (see details below)		15

**Elective Courses**

Elective courses may be taken to pursue historical, technical or theoretical studies that the candidate finds useful, to strengthen areas of weakness, or simply to enrich their degree program appropriately. All candidates must successfully complete a minimum of 15 elective credit hours in English courses numbered 800 and above and in approved 500-, 600- and 700-level courses. Candidates may take up to 26 elective credit hours in approved English courses numbered 500 and above. Other exceptions may be made as approved by the director of creative writing and with the consent of the department chairperson. Graduate students in 500-, 600- and 700-level courses are expected to meet higher standards of achievement than those imposed on undergraduates in the same courses. Within this unit, as many as 9 credit hours total of ENGL 880, ENGL 881 and ENGL 850 may be taken.

**Comprehensive Examination**

All candidates are required to pass a written comprehensive examination in the final semester of their coursework. This examination is based on a reading list of 30 books chosen from the creative writing program master list by the candidate's final writing project director and the director of creative writing in consultation with the candidate.

**Final Writing Project**

The MFA final writing project in creative writing consists of a body of original work of publishable quality. The manuscript must be of such length as is appropriate to published books in its genre and is to be written under the direction of a member of the program

staff. Candidates may preface their final writing project with a short introduction if they choose to do so.

### **Final Writing Project Review**

Once the candidate has submitted the final writing project, a committee composed of the project director and a second reader will examine the work and determine whether or not the project meets the standards of acceptance.

### **Applied Learning**

Students in the MFA in creative writing program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by the final project, in which students gather and produce a collection of poetry or fiction.

## **Dual/Accelerated Bachelor's to Master's in English**

The dual/accelerated bachelor's to master's program in English is a coordinated program leading to both a bachelor's and master's degree.

A student admitted to the dual/accelerated program in English as an undergraduate may take up to 9 joint degree credit hours that are applied toward both the bachelor's degree and master's degree program requirements. A course taken for joint credit must be so identified at the time of enrollment in the course.

A student in the dual/accelerated program will be admitted to the MA program in English upon being awarded the bachelor's degree if all admission requirements for the master's program are satisfied at that time and the student has made continued satisfactory progress.

### **Admission**

To be considered for admission to the program, the following must be satisfied:

1. An undergraduate GPA of 3.000 overall and 3.500 in English courses;
2. Completion of at least 60 credit hours of undergraduate study, with at least 18 credit hours remaining for completion of the undergraduate degree;
3. Completion of four English classes at the 300 level or above; and
4. Positive recommendation from at least one member of the English graduate faculty.

The student should apply for admission to the program during the semester prior to the first semester in which he or she intends to enroll in a course for graduate credit.

A student in the dual/accelerated program will be admitted to the MA program in English upon being awarded the bachelor's degree if all admission requirements for the master's program are satisfied at that time and the student has made continued satisfactory progress.

### **Program Requirements**

Students admitted to the dual/accelerated program will be allowed to enroll in courses for graduate credit, including 800-level courses, prior to completing undergraduate degree requirements. At most 9 credit hours may be joint degree hours — hours taken for graduate credit at the 700 level (or above) that are also applied to both the bachelor's degree and master's degree program requirements. If this deviation is requested, joint-degree hours may not include workshop courses, undergraduate core curriculum courses, cooperative education courses, or courses that are prerequisite for the graduate program. A course taken for joint credit must be so identified at the time of enrollment in that course. Where courses specify differing requirements for graduate

and undergraduate students (500–799), the student must meet the requirements for graduate students to apply the course to graduate credit. A student who has previously been admitted to a graduate degree program at Wichita State may not be admitted to the dual/accelerated program.

After initial admission, continuation in the program requires a continuing WSU undergraduate cumulative GPA of at least 3.000 and a GPA of at least 3.000 in courses taken for graduate credit. ENGL 700 must be included in the undergraduate program of study for students in the dual/accelerated program. (*Note:* ENGL 700 is normally offered only during fall semester. Students will be expected to plan accordingly.) Dual/accelerated students should also complete the English MA language requirement before completing the undergraduate degree. In addition to completing the undergraduate degree requirements for their major emphasis (English literature, creative writing, English education), all dual/accelerated students, regardless of their major emphasis, should complete all four courses in the 360–363 sequence before completing the undergraduate degree.

Upon admission to the dual/accelerated program the student is granted tentative admission to the graduate program in English, pending award of the undergraduate degree. The student should draw up a tentative plan of study in consult with the undergraduate coordinator and/or the graduate coordinator. This plan will be reviewed periodically by the undergraduate coordinator and the graduate coordinator. The student's progress in the program will be reviewed annually with a written progress report placed in the student's departmental file.

## **Certificate in English Literature and Composition Pedagogy**

### **Admission**

To be considered for admission to the program, applicants must meet the following:

1. A bachelor's degree from a regionally accredited institution; and
2. A grade point average of at least 2.750 based upon the last 60 credit hours of coursework (or nearest semester or term break to this), including any postbachelor's graduate work.

Students who do not meet the 2.750 grade point average requirement may be admitted to this category on probation if reasonable evidence exists to indicate their ability to perform satisfactorily in 800-level or above coursework.

Applicants who have an earned degree from institutions in countries in which English is not the native language must meet one of the following before being admitted into the program: minimum 100 iBT or equivalent TOEFL score, overall 7.5 IELTS band score, or a 73 on the PTE-Academic.

Current graduate students of WSU should complete the Declaration of Intent to Pursue a Graduate Certificate form through the Graduate School website (<http://www.wichita.edu/graduate/>)<sup>1</sup>. The admission review faculty may request any of the listed admission requirements before rendering an admission decision to the request.

<sup>1</sup> Link opens new window.

### **Program Requirements**

Students enrolled in the 12-credit-hour certificate program are required to take a variety of coursework within the English discipline with emphasis placed on coursework appropriate to high school educators. No more than one third of these classes can be graded *S/U*. A cumulative graduate grade point average of at least 3.000 for all courses

comprising the certificate program is expected with no grades below C. Transfer credit hours are not accepted for this certificate program. Students may use certificate coursework toward an eventual degree. The certificate's plan of study includes the following courses:

Course	Title	Hours
<b>Required Courses</b>		
ENGL 680	Theory and Practice in Composition	3
ENGL 576 or ENGL 580	Advanced Studies in the Graphic Novel Special Studies	3
<b>Electives</b>		
Select 6 credit hours in consultation with the certificate coordinator in the area of pedagogical studies, rhetoric and composition, literary studies, and/or linguistics.		6
Total Credit Hours		12

Students have the option of completing the certificate program completely online; they can also pursue coursework in the traditional classroom setting.

In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

## Ethnic Studies

Although a graduate program is not currently available in ethnic studies, the department of ethnic studies participates extensively with other departments in the multidisciplinary Master of Arts in communication. See requirements for this program in the Elliott School of Communication section of the Graduate Catalog.

### Courses in Ethnic Studies

- Ethnic Studies (ETHS) (p. 338)

## Geography

Although there is no graduate program in geography, many courses are available for graduate study.

### Courses in Geography

- Geography (GEOG) (p. 341)

## Geology

Students interested in graduate studies in geology should see the separate section in this catalog for the earth, environmental and physical sciences (EEPS) Master of Science program for details. This program offers advanced training in research, knowledge and skills in geology, environmental science or physics. For students concentrating their efforts in geology, the following courses are available for graduate credit in this degree program.

### Courses in Geology

- Geology (GEOL) (p. 342)

## History

### Master of Arts and Areas of Specialization

The history department offers courses of study leading to the Master of Arts (MA) degree with specializations in U.S. history, the ancient and medieval world, European history, and local and community history.

### Programs in History

- MA in History (p. 214)
- MA in History - Thesis Program in Local and Community History (p. 215)

### Courses in History

- History (HIST) (p. 346)

## MA in History

### Admission

Admission to the MA program in history requires completion of an undergraduate major in history, or a minimum of 18 credit hours of history; a grade point average of 2.750 or better, including all undergraduate hours, and a 3.000 grade point average in history. Under unusual circumstances applicants with less than a 3.000 average in history may be granted a probationary admission. Applicants must submit a one page Statement of Purpose, and a writing sample of no more than 20 pages to the graduate coordinator. International students are required to have a minimum TOEFL score of 600 paper-based, or 100 internet-based, or an overall band score of 7.5 on the IELTS, or a score of 73 on the PTE-Academic. The application deadline for domestic and U.S. resident students for fall admission is March 15 and October 1 for spring admission. For international students, the deadlines are April 1 and August 1, respectively.

### Program Requirements

Students may follow one of three plans for a graduate degree in history: a thesis program, a nonthesis program and a program in local and community history.

### Thesis Program

Course	Title	Hours
HIST 725	Advanced Historical Methods	3
HIST 727	Readings In History	3
Select 9 credit hours of the following:		9
HIST 730	Seminar American History	
HIST 733	Seminar European History	
Select 12 credit hours of HIST 500- and 600-level courses		12
HIST 802	Thesis	4
Total Credit Hours		31

At least one seminar and one lecture-based course must be taken outside of the student's primary comprehensive field.

Students must pass a foreign language competency examination, pass a written examination in one comprehensive field, and pass an oral examination in defense of the thesis. The written examination must precede the oral examination.

### Nonthesis Program

Course	Title	Hours
HIST 725	Advanced Historical Methods	3
Select 6 credit hours of the following:		6
HIST 727	Readings In History	
Select 12 credit hours of the following:		12
HIST 730	Seminar American History	
HIST 733	Seminar European History	
Select 12 credit hours of HIST 500- and 600-level courses		12
Total Credit Hours		33

Students must pass written examinations in two comprehensive fields.

### Comprehensive Fields

Students may select from the following areas for their comprehensive examinations:

- U.S. History
- The Ancient and Medieval Worlds
- Modern Europe
- Local and Community History

Written examinations will be scheduled to take place during a two week period following the spring and fall breaks.

### Applied Learning

Students in the MA in History program are required to complete an applied learning or research experience to graduate from this program.

For students choosing the thesis option, the requirement can be met by completing HIST 725 and HIST 802.

For students choosing the nonthesis option, the requirement can be met by completing HIST 725.

## MA in History - Thesis Program in Local and Community History Admission

Admission to the MA program in history requires completion of an undergraduate major in history, or a minimum of 18 credit hours of history; a grade point average of 2.750 or better, including all undergraduate credit hours; and a 3.000 grade point average in history. Under unusual circumstances applicants with less than a 3.000 average in history may be granted a probationary admission. Applicants must submit a one page statement of purpose, and a writing sample of no more than 20 pages to the graduate coordinator. International students are required to have a minimum TOEFL score of 600 paper-based, or 100 internet-based, or an overall band score of 7.5 on the IELTS, or a score of 73 on the PTE-Academic. The application deadline for domestic and U.S. resident students for fall admission is March 15, and October 1 for spring admission. For international students, the deadlines are April 1 and August 1, respectively.

### Program Requirements

Course	Title	Hours
HIST 519	Introduction to Local and Community History	3
HIST 725	Advanced Historical Methods	3
HIST 528 or HIST 535	History of Wichita History of Kansas	3
Select one of the following courses		3
HIST 703	Museum Administration	
HIST 803	Internship Public History <sup>1</sup>	
Select 6 credit hours of seminar coursework from any combination of the following courses		6
HIST 730	Seminar American History	
HIST 733	Seminar European History	
Select 12 credit hours of HIST 500- and 600-level courses		12
HIST 802	Thesis	4
Total Credit Hours		34

<sup>1</sup> HIST 781 may be substituted for HIST 803 with the consent of the director of the local and community history program.

### Comprehensive Fields

Students may select from the following areas for their comprehensive examinations:

- U.S. history;
- The ancient and medieval worlds;

- Modern Europe; and
- Local and community history.

Written examinations will be scheduled to take place during a two week period following the spring and fall breaks.

### Applied Learning

Students in the MA in history - thesis program in local and community history are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing a thesis. Students are also required to take HIST 519 and HIST 725, which are both designed to have an applied learning component. Moreover students may take an internship/cooperative education program.

## Liberal Studies - Interdisciplinary Certificates in Liberal Studies - Interdisciplinary

- Graduate Certificate in Great Plains Studies (p. 215)

### Courses in Liberal Studies - Interdisciplinary

- Liberal Studies Interdisciplinary (LASI) (p. 360)

## Certificate in Great Plains Studies

Fairmount College of Liberal Arts and Sciences offers a graduate certificate in Great Plains studies, an interdisciplinary program for professional or personal enrichment. This certificate is for students interested in taking a concentration of courses from a number of disciplines focusing on a common topic, the Great Plains.

### Admission

Graduate students must meet requirements for admission to the WSU Graduate School in a degree program or nondegree Category A status. They must have a cumulative grade point average of at least 3.000 for all courses comprising the graduate certificate program with no grade below C. The Graduate School does not accept transfer credit for certificate programs.

### Program Requirements

By the end of the student's final semester, the student should submit to the coordinator at least three works that demonstrate the application of the concepts, issues and topics of Great Plains studies. Examples of these works may be a thesis, a conference paper or poster, a novel, a play, a work of nonfiction, a historic tour, historic performance, museum exhibit, policy paper, fieldwork notes, or collaborative event with a community or scholarly organization.

Students complete 15 credit hours of coursework.

Course	Title	Hours
<b>Select 15 credit hours from the following courses, including at least two courses in each area</b>		
<i>Physical</i>		
GEOL 560	Geomorphology and Land Use	
GEOL 640	Field Geology	
BIOL 503	Field Botany	
BIOL 532	Entomology	
BIOL 560 & BIOL 561	Plant Ecology and Plant Ecology Lab	
BIOL 575	Field Ecology	
BIOL 610	Topics in Botany	
<i>Cultural</i>		
ANTH 612	Indians of the Great Plains	
ANTH 613	Archaeology of the Great Plains	

HIST 528	History of Wichita
HIST 535	History of Kansas
HIST 519	Introduction to Local and Community History
Total Credit Hours	
15	

Courses whose content may emphasize the Great Plains, depending on instructor and semester, may be counted toward the certificate provided they meet the proposed distribution requirements.

Any substitution of the listed course must be approved by the coordinator and must meet the subject domain distribution requirement.

Courses that do not meet the learning outcomes of the certificate will be taken off the approved course list.

In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

For information and application procedures, please contact: Jay M. Price, coordinator, Great Plains Studies, 316-978-7792.

## Linguistics

Although there is no graduate program in linguistics, the following courses are available for graduate study.

Linguistics courses fall into four categories:

- Group A — Basic Linguistic Theory: LING 506, LING 665, LING 667;
- Group B — Linguistic Study of Specific Languages or Language Groups: LING 546, LING 547, LING 668;
- Group C — Areas of Contact Between Linguistics and Other Disciplines: LING 664, LING 651, LING 740; and
- Other — LING 590.

### Courses in Linguistics

- Linguistics (LING) (p. 361)

## Mathematics, Statistics and Physics

The department of mathematics, statistics and physics offers courses of study leading to:

- The Master of Science (MS) degree in mathematical foundations of data analytics,
- The Master of Science (MS) degree in mathematics,
- The Doctor of Philosophy (PhD) degree in applied mathematics, and
- The Master of Science (MS) degree in physics.

### Programs in Mathematics, Statistics and Physics

- PhD in Applied Mathematics (p. 216)
- MS in Mathematical Foundations of Data Analytics (p. 217)
- MS in Mathematics (p. 218)
- MS in Physics (p. 218)
- Dual/Accelerated Bachelor's to Master's Program in Mathematics and Statistics (p. 219)

### Certificates in Mathematics, Statistics and Physics

- Certificate in Mathematical Foundations of Data Analytics (p. 219)
- Certificate in Space Science (p. 220)

### Courses in Mathematics, Statistics and Physics

- Mathematics (MATH) (p. 362)
- Physics (PHYS) (p. 394)
- Statistics (STAT) (p. 414)

## PhD in Applied Mathematics

The primary emphases in the doctoral program in applied mathematics are applied mathematics, statistics and applied mathematics-physics.

### Admission

Admission to the PhD program in applied mathematics requires completion of an undergraduate degree in mathematics, statistics or physics, including coursework in advanced calculus, linear algebra, numerical methods, and either modern algebra or mechanics, electromagnetism and quantum physics. A grade point average of 3.250 in coursework in mathematics, statistics and physics is required, as well as an overall GPA of 3.000 overall (3.250 if the student has a previous master's degree). The GRE subject test in mathematics or physics is recommended but not required.

### Program Requirements

To complete the PhD program in applied mathematics, the student must satisfy the course, language and residency requirements given below; pass the qualifying and preliminary examinations; and write a dissertation containing original research in statistics, applied mathematics-physics or applied mathematics.

### Course Requirements

A total of at least 84 hours of graduate credit is required. **The following courses may not be included:**

Course	Title	Hours
MATH 757	Partial Differential Equations for Engineers	3
MATH 758	Complex and Vector Analysis for Engineers	3
PHYS 730	Principles of Computer Modeling	2
PHYS 761	Environmental Physics	3
PHYS 795	Earth and Space Physics	3
Mathematics, statistics and physics courses numbered below 700		

At least 36 credit hours must be in mathematics, statistics and physics courses numbered above 800 (exclusive of MATH 985). Courses used toward a master's degree may be included. A maximum of 36 credit hours may be transferred from another university at the discretion of the student's committee.

Course	Title	Hours
<b>Required Courses</b>		
MATH 743	Real Analysis I	3
MATH 751	Numerical Linear Algebra	3
<i>Select one of the following options:</i>		
Option 1		
MATH 843	Real Analysis II	
MATH 745 & MATH 845	Complex Analysis I and Complex Analysis II	
MATH 755 & MATH 856	Partial Differential Equations I and Partial Differential Equations II	
MATH 941 & MATH 942	Applied Functional Analysis I and Applied Functional Analysis II	

MATH 852	Numerical Analysis of Partial Differential Equations	
PHYS 714	Theoretical Physics	
<b>Option 2</b>		
STAT 771 & STAT 772	Theory of Statistics I and Theory of Statistics II	
MATH 843	Real Analysis II	
STAT 861 & STAT 862	Theory of Probability I and Theory of Probability II	
STAT 870 & STAT 871	Theory of Statistical Inference I and Theory of Statistical Inference II	
STAT 872 & STAT 873	Theory of Linear Models I and Theory of Linear Models II	
<b>Option 3</b>		
PHYS 714	Theoretical Physics	
PHYS 821	Classical Mechanics	
PHYS 831	Classical Electricity and Magnetism	
PHYS 811	Quantum Mechanics	
PHYS 812	Advanced Quantum Mechanics	
PHYS 816	Methods in Experimental Physics	
STAT 763	Applied Regression Analysis	
Select two physics specialty subject classes from the following:		
PHYS 871	Statistical Mechanics	
PHYS 876	Elementary Particles & Fields	
PHYS 881	Solid State Physics	
PHYS 895	Advanced Astrophysics	
<b>Additional Courses</b>		
Select at least 51 additional graduate credit hours		51
Total Credit Hours		84

### **Professional and Scholarly Integrity Training Requirement**

Students are required to take and pass the following four Collaborative Institutional Training Initiative (CITI) modules for the physical sciences: research misconduct; practices and responsible authorship; conflicts of interest and commitment; data acquisition, management sharing and ownership. This should be done during the first year as a student in the program.

### **Language Requirements**

The student must demonstrate proficiency either in two foreign languages or in one foreign language and one high-level computer language. The foreign languages are Chinese, French, German and Russian. The language proficiency will be demonstrated by passing an examination that consists of the translation, with the use of a dictionary, of one or more passages of mathematics text from the foreign language into English.

### **Residency Requirement**

The student must complete at least one academic year in residence as a full-time student at WSU.

### **Qualifying Exam**

The qualifying exam is a written exam administered near the middle of both the fall and spring semesters. The student will choose to be examined in two of the following four areas:

1. Real analysis;
2. Numerical linear algebra;

3. Statistics;
4. Physics.

A student who does not pass on the first attempt may be permitted to take the exam a second time. A person who retakes the exam must retake the entire exam. The exam may be retaken only once.

### **PhD Committee**

Upon the student passing the qualifying exam, the graduate coordinator, in consultation with the student, recommends to the departmental PhD Advisory Committee a PhD committee for the student. The student's PhD committee consists of the student's dissertation advisor as chair and four other members. At least one, but no more than two, of the committee members shall be from departments outside the department of mathematics, statistics and physics. Within one semester after passing the qualifying exam the student should submit a plan of study to the committee for approval. This committee serves as examining committee for both the preliminary and final exams.

### **Preliminary Exam**

The preliminary exam covers specific topics relevant to the student's research area as determined by his or her PhD advisor. The student should meet as soon as possible with their advisor to set the topics to be covered. For full-time students, the exam should normally be taken about one year after passing the qualifying exam. Before the preliminary exam is taken, one of the two language requirements must be satisfied. A student who fails the preliminary exam may be permitted to retake the exam if the committee so determines.

### **Dissertation and Final Exam**

Upon passing the preliminary exam, the student becomes a candidate for the PhD degree. Soon thereafter the student must submit a written dissertation proposal to his or her committee for approval. While working on the dissertation, the student should enroll for a total of at least 18 credit hours of PhD dissertation. The student must be enrolled at the university during each semester after admission to candidacy until completion of the dissertation. After the dissertation is completed, the student must present and defend it before the committee. This defense constitutes the final exam. The dissertation defense is open to the public.

### **Applied Learning**

Students in the PhD in applied mathematics are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing the PhD thesis (dissertation) and all remaining criteria and requirements for the program.

## **MS in Mathematical Foundations of Data Analytics**

### **Admission**

Students will be admitted to full graduate standing in the mathematical foundations of data analysis program if they have the equivalent of an undergraduate major in mathematics, have a grade point average of at least 3.000 in mathematics and computer sciences courses, and meet Graduate School admission requirements. Students may be admitted on a conditional basis if they do not have all the prerequisite coursework.

### **Program Requirements**

To complete the MS in mathematical foundations of data analysis degree, students must earn 30 credit hours from the following list of courses:

Course	Title	Hours
<b>Six Required Courses</b>		
MATH 746	Introduction to Data Analytics	3
BSAN 775	Perspectives on Business Analytics	3
CS 746	Perspectives on Data Science	3
CS 697AB	Machine Learning	3
MATH 553	Mathematical Models	3
MATH 802	Data Analytics Capstone	3
<b>Two Statistical Electives</b>		<b>6</b>
STAT 763	Applied Regression Analysis	
STAT 764	Analysis of Variance	
STAT 776	Applied Statistical Methods II	
<b>One Computing Elective</b>		<b>3</b>
STAT 774	Statistical Computing I	
MATH 751	Numerical Linear Algebra	
CS 560	Design and Analysis of Algorithms	
<b>One Other Elective</b>		<b>3</b>
CS 665	Introduction to Database Systems	
MIS 600	Database Management Systems	
IME 780AN	Big Data Analytics in Engineering	
BSAN 875	Advanced Business Analytics	
Total Credit Hours		30

An oral comprehensive examination is required of all degree candidates.

### Applied Learning

Students in the MS in mathematical foundations of data analysis are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by taking MATH 802 Data Analytics Capstone.

## MS in Mathematics

### Admission

Students will be admitted to full graduate standing if they have the equivalent of an undergraduate degree in mathematics, have a grade point average of at least 3.000 in mathematics courses, and meet Graduate School admission requirements.

### Program Requirements

To complete the MS degree, students must earn 33 credit hours of graduate credit<sup>1</sup>, with a minimum of 24 credit hours in courses in mathematics or statistics offered by the department (exclusive of thesis) numbered 700 or above. The 33 credit hours must include the completion of three two-semester sequences in mathematics and/or statistics numbered 700 or above.

Students who plan to enter the PhD program in applied mathematics should include Real Analysis I and II (MATH 743 and MATH 843) and Numerical Linear Algebra (MATH 751) in their MS program of study.

Generally not more than 6 credit hours of approved coursework may be transferred from another university. Students may take either a thesis or a nonthesis option. Students electing to write a thesis should enroll

in MATH 885 for up to 6 credit hours. A student's program must be approved by the department.

An oral comprehensive examination is required of all degree candidates. For students electing the nonthesis option, the exam covers four courses, numbered 700 or above, chosen by the student. For students electing the thesis option, the comprehensive examination takes place at the same time as the thesis defense. The examination normally concentrates on the thesis, plus possibly two courses, numbered 700 or above, chosen by the student.

A student in the PhD program in applied mathematics who does not have a previous master's degree in mathematics will be eligible to receive the MS degree in mathematics upon satisfying the following:

1. Completion of at least 33 credit hours in mathematics courses applicable toward the PhD degree course requirements, and
2. Passing the PhD qualifying exam. In such cases the qualifying exam will constitute the comprehensive exam for the MS degree.

<sup>1</sup> Complex and Vector Analysis for Engineers (MATH 758) and mathematics or statistics courses numbered below 600 do not count toward the 33 credit hours needed for the MS in mathematics.

### Applied Learning

Students in the MS in mathematics program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing one of the following:

1. The student completes a thesis;
2. The student attends a conference and presents at least a poster;
3. The student performs outreach in the local school district;
4. The student does a presentation in a venue involving members of the community, such as the Science Expo at Keeper of the Plains, or through participation in Math Circle, Pi Mu Epsilon or Math Awareness; or
5. The student carries out a research project followed by a seminar presentation. The department also proposes to compile a list of recent graduates willing to make contact with current students. A student presenting material in a seminar, for example, could reach out to a member of this professional network and invite them to attend.

## MS in Physics

Through its Master of Science (MS) degree program, the physics group in the department of mathematics, statistics and physics helps students prepare for doctoral work in physics or for STEM related jobs in research and industry.

The MS degree program is flexible, allowing students to design their studies to meet their educational or career goals. Students may combine the study of physics with interest in such fields as astronomy, engineering, geology, computer science, mathematics and education.

### Admission

Admission to the MS program in physics requires the completion of 24 credit hours of undergraduate physics, including 3 credit hours of mechanics and 3 credit hours of electricity and magnetism. Graduate School admission requirements must also be met.

### Program Requirements

The MS degree in physics requires the successful completion of a plan of study approved by the student's advisor and the director of physics/department chairperson. Two options are available: a 36 credit

hour nonthesis program, and a 30 credit hour program that includes a research project written as a thesis.

Course	Title	Hours
Select at least 12 credit hours in courses numbered 800 or above. The following are recommended by the department		12
PHYS 821	Classical Mechanics	
PHYS 831	Classical Electricity and Magnetism	
PHYS 871	Statistical Mechanics	
PHYS 811	Quantum Mechanics	
Select 12 additional credit hours <sup>1</sup>		12
<b>Select one of the following options</b>		
<i>Nonthesis Option</i>		12
Select 12 additional credit hours		
<i>Thesis Option (research project written as a thesis)</i>		6
PHYS 809	Research	

<sup>1</sup> A typical plan of study may consist of up to 12 credit hours of coursework taken outside the department.

### Examination

During the first semester, students are given a diagnostic entrance examination. An oral defense of the thesis is required.

### Other Program Options

Other program options are available which provide the possibility of combining the study of physics with interests in other fields such as astronomy, engineering, mathematics, geology, computer science, chemistry, biological sciences and education.

### Applied Learning

Students in the MS in physics are required to complete an applied learning or research experience to graduate from the program.

The requirement can be met by completing the thesis option. For the nonthesis program, several options are available to meet the requirement. Among these are the completion of a research paper, PHYS 816 or other options individually approved by the graduate advisor or the chair/director of physics.

## Dual/Accelerated Bachelor's to Master's Program in Mathematics and Statistics

The dual/accelerated bachelor's to master's program in mathematics and statistics is a coordinated program leading to both a bachelor's and master's degree. Admission requirements for the program are given in the Undergraduate Catalog.

### Admission

To be considered for admission to the program, the following must be satisfied:

1. An undergraduate GPA of 3.000 overall and 3.500 in math and statistics courses;
2. Completion of at least 60 credit hours of undergraduate study, with at least 18 credit hours remaining for completion of the undergraduate degree;
3. Completion of MATH 415, MATH 451 and MATH 511, and either completion of, or current enrollment in, MATH 513 or MATH 547; and
4. Positive recommendation from the student's fast track advisor.

The student should apply for admission during the semester prior to the first semester in which he or she intends to enroll in a course for graduate credit.

A student in the dual/accelerated program will be admitted to the MS program in mathematics upon being awarded the bachelor's degree if all admission requirements for the master's program are satisfied at that time.

### Program Requirements

Students admitted to the dual/accelerated program will be allowed to enroll in courses for graduate credit, including 800-level courses, prior to completing undergraduate degree requirements. At most 9 credit hours may be joint degree hours — hours taken for graduate credit at the 700-level (or above) that are applied to both the bachelor's degree and master's degree program requirements. A course taken for joint credit must be so identified at the time of enrollment in that course.

After initial admission, continuation in the program requires a continuing WSU and undergraduate cumulative GPA of at least 3.000 and a GPA of at least 3.000 in courses taken for graduate credit. MATH 513 must be included in the undergraduate program of study for students in the dual/accelerated program. Otherwise requirements for the BS or BA in mathematics and statistics are the same as for other students with a major in mathematics and statistics. Students admitted to the dual/accelerated program are expected to write a thesis as part of their master's degree program of study. A student who has previously been admitted to a graduate degree program at Wichita State may not be admitted to the dual/accelerated program.

All bachelor's degrees in mathematics require a high-level algorithmic computer language. The MATLAB course, MATH 451, is strongly recommended.

## Certificate in Mathematical Foundations of Data Analytics

The graduate certificate in mathematical foundations of data analytics is designed to provide training in data analytics to individuals who are currently working, as well as current graduate students in mathematics, statistics, physics, engineering, etc.

### Admission

**New graduate students:** Applicants to the Certificate in MFDA are required to meet Graduate School requirements for nondegree, Category A admission. The graduate certificate should be selected as the intended program in the Graduate School application.

**Current WSU graduate students:** To apply for the certificate program, submit the Graduate School's Declaration of Intent to Pursue a Graduate Certificate form located on the Graduate School's webpage. With departmental approval, the student may then be admitted to the certificate program. All Graduate School and departmental admission requirements apply. International students may enroll in the certificate program but must ensure it complies with their visa requirements. Students should contact the office of graduate studies in mathematics to inform it of their intent to enroll in the program.

### Program Requirements

The certificate in MFDA consists of 15 credit hours. Six (6) of the credit hours are composed of two required courses. The remaining 9 credit hours are satisfied by completing elective courses. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

Course	Title	Hours
<b>Required Courses</b>		
MATH 746	Introduction to Data Analytics	3
MATH 802	Data Analytics Capstone	3
<b>Electives</b>		
Select 9 credit hours from the following		9
MATH 553	Mathematical Models <sup>1</sup>	
PHYS 730	Principles of Computer Modeling <sup>1</sup>	
MATH 751	Numerical Linear Algebra	
STAT 763	Applied Regression Analysis	
STAT 764	Analysis of Variance	
STAT 774	Statistical Computing I	
STAT 776	Applied Statistical Methods II	
PHYS 816	Methods in Experimental Physics	
Total Credit Hours		15

<sup>1</sup> Only one of these courses may be counted toward completion of the certificate program.

## Certificate in Space Science

### Admission

Applicants for admission to the space science graduate program for a graduate certificate in space science should have a bachelor's degree in natural science or engineering with a GPA of 3.000/4.000 or higher. The student is expected to write a one paragraph letter of why they want a graduate certificate in space science.

### Program Requirements

A graduate certificate in space science can be obtained with 18 credit hours of the following classes. Students need to take 12 credit hours or more at or above the 700 level in classes. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

Course	Title	Hours
<b>Required Courses</b>		
PHYS 795	Earth and Space Physics	3
PHYS 845	Space Science Foundations	3
PHYS 851	Plasma Physics	3
AE 715	Intermediate Space Dynamics	3
or AE 760AC	Nano-Satellite Engineering	
PHIL 530	Ethics of Space Exploration	3
<b>Elective</b>		
<i>Select one elective class such as</i>		3
PHYS 855	Radiation Physics	
BIOL 660K	Astrobiology	
EEPS 721	Current Issues in Global Environmental Science	
PHYS 761	Environmental Physics	
Or as arranged with the space science graduate advisor		
Total Credit Hours		18

## Modern and Classical Languages and Literatures

### Programs in Modern and Classical Languages and Literatures

- MA in Spanish (p. 220)
- Dual/Accelerated Bachelor's to Master's Program in Spanish (p. 221)

### Certificates in Modern and Classical Languages and Literatures

- Certificate in Hispanic Cultural Studies
- Certificate in Spanish for the Professions

### Courses in Modern and Classical Languages and Literatures

- French (FREN) (p. 340)
- German (GERM) (p. 344)
- Latin (LATN) (p. 361)
- Spanish (SPAN) (p. 412)

## Spanish

The department of modern and classical languages and literatures offers courses of study leading to the Master of Arts (MA) degree in Spanish.

### Programs in Spanish

- MA in Spanish (p. 220)
- Dual/Accelerated Bachelor's to Master's Program in Spanish (p. 221)

### Certificates in Spanish

- Certificate in Hispanic Cultural Studies (p. 221)
- Certificate in Spanish for the Professions (p. 222)

### Courses in Spanish

- Spanish (SPAN) (p. 412)

*Note:* Upper-division courses are given on a rotating basis. SPAN 400 is a prerequisite for all upper-division literature and civilization courses, unless otherwise indicated.

## MA in Spanish

### Admission

Admission to the Master of Arts program requires a 3.000 GPA in Spanish. Non-native speakers must have completed 24 credit hours of undergraduate Spanish beyond the basic language courses (for example, WSU classes SPAN 111, SPAN 112 and SPAN 210); 8 of these 24 credit hours should be at the junior-senior level (WSU classes 300 and above). Native speakers must have completed 12 credit hours of Spanish at the junior-senior level or demonstrate equivalent background knowledge. Students with background in other fields (non-Spanish majors) should demonstrate knowledge of the language and of a set of basic analytical tools within the humanities. This level will be determined by the graduate coordinator in consultation with graduate faculty.

### Program Requirements

The MA degree in Spanish requires:

- The completion of 32 credit hours beyond the bachelor's degree. A minimum of 23 credit hours of Spanish (and maximum of 32 credit hours of Spanish on the plan of study), must include the following:

Course	Title	Hours
SPAN 526	Advanced Spanish Grammar and Composition <sup>1</sup>	3
Select three of the following survey courses:		9
SPAN 833	Survey of Spanish Literature I (to 1700) <sup>2</sup>	
SPAN 834	Survey of Spanish Literature II <sup>2</sup>	
SPAN 835	Survey of Latin-American Literature (15th-19th Centuries) <sup>2</sup>	
SPAN 836	Survey of Latin-American Literature (20th and 21st Centuries) <sup>2</sup>	
At least two seminars or equivalent courses that require research papers from the following:		
SPAN 520	Hispanic Film: Cinema in the Spanish Speaking World	
SPAN 546	Spanish Language Learning	
SPAN 547	Spanish in the U.S.	
SPAN 623	Seminar In Spanish	
SPAN 624	Seminar in Latin-American Literature or Culture	
SPAN 626	Spanish Civilization	
SPAN 627	Latin-American Civilization	
SPAN 632	Hispanic Cooking Communities	
SPAN 633	Latin@ Studies	
SPAN 641	Seminar in Hispanic Applied Linguistics	

<sup>1</sup> A candidate for a degree must pass SPAN 526 or an equivalent course with a *B* or better at either the undergraduate or graduate level.

<sup>2</sup> If their equivalents were not taken as undergraduate courses.

- A maximum of 9 credit hours of related fields may be included in the plan of study. Related fields typically include another foreign language; English, American and foreign literatures; art; Latin American history; or geography. All related field courses must be approved by the chairperson of the department of modern and classical languages and literatures or the graduate coordinator.
- Special recommendation is strongly made that all MA candidates in Spanish earn a minimum of 4 credit hours of transferable credit in a university located in a Spanish-speaking country.

### Examinations

Before the MA degree in Spanish is granted, all candidates must pass written comprehensive examinations based on two reading lists — Latin American literature and peninsular (Spain) literature — and on a third area of examination of the student's choosing. That reading list will be developed in consultation with faculty. An academic presentation or a report could replace the exam of this particular area. After these three exams are approved, the student has to pass the oral exam. No exam may be taken more than twice.

### Applied Learning

Students in the MA program in Spanish are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by successful completion of SPAN 833, SPAN 834, SPAN 835 or SPAN 836, all of which involve the application of theoretical models to literature, culture and social issues.

Additionally, these courses prepare students for careers in teaching and research where knowledge is applied through pedagogy.

## Dual/Accelerated Bachelor's to Master's Program in Spanish

The dual/accelerated bachelor's to master's degree program is designed to offer outstanding Spanish students the opportunity for advancing their careers by pursuing the bachelor's and master's degree in a parallel program and accelerated time frame. A student in the program will be allowed to enroll in courses for graduate credit while completing undergraduate degree requirements.

### Admission

Undergraduate students apply for admission to the accelerated bachelor's to master's program through the WSU Graduate School application and admission process during the semester prior to the first semester in which he or she intends to enroll in a course for graduate credit. The application term should be for the semester after the student expects to complete the bachelor's degree. Tentative graduate admission does not guarantee final admission to the graduate program and final graduate admission is contingent upon the student meeting all the admission requirements for the Spanish master's program at the time the bachelor's degree is awarded. A student who has previously been admitted to a graduate degree program at Wichita State may not be admitted to the dual/accelerated program.

To be considered for admission to the accelerated bachelor's to master's degree program, the following must be satisfied:

1. Completion of at least 60 credit hours;
2. A cumulative undergraduate GPA of at least 2.750 and 3.000 in Spanish courses;
3. Completion of three Spanish courses at the 300 level or above; and
4. A letter of recommendation from at least one member of the Spanish faculty.

A student in the dual/accelerated program will be admitted to the MA program in Spanish upon being awarded the bachelor's degree if all admission requirements for the master's program are satisfied at that time and the student has made continued satisfactory progress.

### Program Requirements

#### Dual Credit Courses

Students admitted to the dual/accelerated program will be allowed to enroll in courses for graduate credit prior to completing undergraduate degree requirements. A maximum of 9 credit hours may be joint degree hours — hours taken for graduate credit that are also applied to the bachelor's degree. A course taken for joint credit must be so identified at the time of enrollment in that course.

After initial admission, continuation in the program requires a continuing WSU and undergraduate cumulative GPA of at least 3.000 and a GPA of at least 3.000 in courses taken for graduate credit.

## Certificate in Hispanic Cultural Studies

### Admission

This program is designed to allow students to advance their knowledge and skills of cultural analysis. This certificate is for students interested in research and teaching that investigates the ways in which culture transforms human beings, literature and language, and social structures. The program combines interdisciplinary approaches in order to understand Hispanic culture.

Admission to the certificate program requires a 3.000 GPA with 1) an earned bachelor's in Spanish or 2) another area with an advanced level of Spanish (to be determined by the program coordinator).

Current graduate students of WSU should complete the Declaration of Intent to Pursue a Graduate Certificate form through the Graduate School website (<https://www.wichita.edu/graduate/>)<sup>1</sup>. The admission review faculty may request any of the listed admission requirements before rendering an admission decision.

<sup>1</sup> Link opens new window.

### Program Requirements

The program consists of 12 credit hours and the students take four (4) of the following courses:

Course	Title	Hours
SPAN 520	Hispanic Film: Cinema in the Spanish Speaking World	3
SPAN 624	Seminar in Latin-American Literature or Culture	3
SPAN 626	Spanish Civilization	3
SPAN 627	Latin-American Civilization	3
SPAN 632	Hispanic Cooking Communities	3
SPAN 633	Latin@ Studies	3
SPAN 805	Directed Readings Spanish	1-4

Courses between 500-799 taken at the undergraduate level cannot be used toward the completion of a graduate certificate.

In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

## Certificate in Spanish for the Professions

### Admission

The program prepares students for careers in the field of translation, interpretation and other settings of applied Spanish. The certificate in Spanish for the professions is designed to train students to become linguistically capable, knowledgeable and culturally sensitive individuals able to perform language services in professional settings where Spanish is used.

Admission to the certificate program requires a 3.000 GPA with 1) an earned bachelor's in Spanish or 2) another area with an advanced level of Spanish (to be determined by the program coordinator).

All students (native, heritage or non-native speakers) need to take an entrance test on grammar and basic translation and interpretation skills, and earn a passing grade equivalent to a 3.000.

A candidate for a degree must pass SPAN 526 Advanced Spanish Grammar and Composition or an equivalent course (for students outside WSU) with a grade equivalent to 3.000 at either the undergraduate or graduate level. This course will not count toward the completion of this certificate.

Current graduate students of WSU should complete the Declaration of Intent to Pursue a Graduate Certificate form through the Graduate School website (<http://www.wichita.edu/graduate/>)<sup>1</sup>. The admission review faculty may request any of the listed admission requirements before rendering an admission decision on the request.

<sup>1</sup> Link opens new window.

### Program Requirements

The program consists of 12 credit hours:

Course	Title	Hours
SPAN 557	Principles of Translation and Interpreting	3
SPAN 558	Advanced Translation and Interpreting	3
SPAN 561	Practicum in Spanish for the Professions	3
SPAN 559 or SPAN 552	Spanish for the Health Professions Business Spanish	3
Total Credit Hours		12

Courses between 500-799 taken at the undergraduate level cannot be used toward the completion of a graduate certificate.

In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

### Examinations

Before the certificate is granted, all candidates must pass written and oral comprehensive examinations based on translation and interpretation materials. These exams cannot be taken more than twice.

## Philosophy

### Courses in Philosophy

- Philosophy (PHIL) (p. 391)

*Note:* Although there is no graduate degree in philosophy, these courses are available for graduate credit.

## Political Science

### Courses in Political Science

- Political Science (POLS) (p. 396)

*Note:* Although there is not a graduate program in political science, these courses are available for graduate credit.

## Psychology

The psychology department offers courses of study leading to the Doctor of Philosophy degree. Students may complete requirements for study in human factors psychology, community psychology or clinical psychology.

### Programs in Psychology

- PhD in Psychology (p. 222)

### Courses in Psychology

- Psychology (PSY) (p. 397)

## PhD in Psychology

### Prerequisites

Applicants are not required to have an undergraduate degree in psychology, but must have completed courses in general psychology, psychological statistics and experimental psychology. Applicants to the clinical psychology program also are required to have completed a course in history and systems of psychology with a B- or better.

### Deadlines

Application for admission should be filed with the dean of the Graduate School and the psychology department by December 1 for the clinical psychology program and January 15 for the community and human factors programs, for enrollment the following fall. Students applying

after the deadlines *may* be considered if any openings in the programs remain. Applicants are informed of admission decisions around April 1 of each year.

### Materials

Applicants will be required to fill out the online Graduate School Application (<http://wichita.edu/gradapplication/>)<sup>1</sup>, where they will be required to upload/provide the following:

- Contact information for three people to serve as references (people acquainted with the applicant's academic background and potential);
- Personal essay;
- Supplemental information (honors, scholarships, employment history, etc.);
- Professional article sample (articles, presentations, projects, etc.); and
- Scores (verbal and quantitative) on the Graduate Record Exam (GRE).

Applicants are evaluated with respect to their undergraduate grade point average; stated career goals; amount, type and scope of undergraduate preparation; reference letters and GRE scores.

<sup>1</sup> Link opens new window.

### Program Requirements

**Required of all students. Must be completed with a B (3.000 or better).**

Course	Title	Hours
<b>Methods Courses</b>		
PSY 902	Advanced Research Methods I	4
PSY 903	Advanced Research Methods II	4
<b>Teaching and Ethics</b>		
PSY 911	Teaching of Psychology: Principles, Practices and Ethics	3

(Note: a grade of B (3.000) or better must be earned in each of the methods courses. Students may retake these courses once. Failure to meet this requirement may lead to dismissal from the program.)

### Second Year Project

All students must complete a predoctoral research program resulting in a document similar to a manuscript ready for journal submission. The student must enroll in PSY 901 each semester (excluding summers) until the project is completed.

### Post-Second Year Project Research

After completion of the second year project requirement, all students will enroll in PSY 909 each semester until the successful completion of qualifying exams.

Community and clinical students must have completed a minimum of 10 credit hours of PSY 901 and/or PSY 909. Human factors students must complete a minimum of 18 credit hours of PSY 901 and/or PSY 909. (Note: Neither PSY 901 nor PSY 909 may be used for electives.)

### Qualifying Examination

Students take a qualifying examination upon completion of all foundation and method courses and most program courses. On passing this examination, students can be admitted to doctoral candidacy.

### Dissertation

All students seeking the PhD are required to complete a dissertation. The dissertation ordinarily is a major research project. A formal written proposal must be approved by the student's dissertation committee prior to beginning the project. A student must be enrolled in PSY 908 any time a student is working on his or her dissertation (including summers). A minimum of 12 credit hours of PSY 908 must be earned. In addition to regular course examinations, all students must pass an oral examination based on their dissertation.

### Additional Program Requirements

#### Human Factors

**Required Courses (Must be completed with a B (3.000) or better.)**

Course	Title	Hours
<b>Foundation Courses</b>		
PSY 904	Biological and Philosophical Foundations of Psychology	3
PSY 905	Cognitive/Learning Foundations of Behavior	3
<b>Program Courses</b>		
PSY 920	Psychological Principles of Human Factors	3
PSY 921	Seminar in Human Factors	3
PSY 922	Seminar in Software Psychology	3
PSY 925	Seminar in Perception	3
<b>Electives</b>		
Select sufficient electives to total (all courses) 90 credit hours, 12 of which must be taken outside the human factors program		

#### Calculus Tool

HFES accreditation requires that human factors students demonstrate a competency in calculus before admission to candidacy. This requirement may be satisfied by:

1. Satisfactorily completing a college-level calculus course;
2. Demonstrating proficiency on an exam; or
3. Providing other evidence of such skills.

#### Internship

Students must complete a three-month research internship (1 credit hour). It is the student's responsibility to develop his or her internship setting.

#### Community

**Required Courses (Must be completed with a B (3.000) or better.)**

Course	Title	Hours
<b>Foundation Courses</b>		
PSY 907	Social and Developmental Foundations of Behavior	3
PSY 912	Seminar on Cultural Diversity	3
Select two of the following:		
PSY 904	Biological and Philosophical Foundations of Psychology	3
PSY 905	Cognitive/Learning Foundations of Behavior	3
PSY 906	Assessment of Personality and Individual Differences	3
<b>Program Courses</b>		
PSY 940	Seminar in Community-Clinical Psychology	3
PSY 941	Applied Research Methods in Community Settings	3

PSY 942	Seminar in Community and Organizational Intervention	3
PSY 943	Seminar in Prevention	3
PSY 948	Seminar in Community Leadership	3
PSY 949	Seminar in Community Advocacy and Social Policy	3

**Practicum**

Select a minimum of 9 credit hours of the following:		9
PSY 944	Practicum in Community Psychology	

**Electives**

Select sufficient electives to total 90 credit hours. Two of the electives must be statistics and/or research methods courses as approved by the advisor

**Clinical**

In addition to courses required for all psychology tracks, the following are the required clinical courses:

*Required Courses (Must be completed with a B (3.000) or better.)*

Course	Title	Hours
<b>Foundation Courses</b>		
PSY 904	Biological and Philosophical Foundations of Psychology	3
PSY 905	Cognitive/Learning Foundations of Behavior	3
PSY 907	Social and Developmental Foundations of Behavior	3
<b>Program Courses</b>		
PSY 912	Seminar on Cultural Diversity	3
PSY 940	Seminar in Community-Clinical Psychology	3
PSY 960	Ethical and Professional Issues in Clinical Psychology	3
PSY 961	Seminar in Cognitive-Behavioral Assessment	3
PSY 961L	Cognitive-Behavioral Assessment Lab	1
PSY 962	Seminar in Cognitive-Behavioral Therapy	3
PSY 962L	Cognitive-Behavioral Therapy Lab	1
PSY 975	Seminar in Psychotherapy	3
PSY 976	Advanced Psychopathology	3
PSY 979	Seminar in Personality Assessment	3
PSY 977	Internship in Clinical Psychology <sup>1</sup>	3
<b>Community Required Courses</b>		
Select two of the following:		6
PSY 941	Applied Research Methods in Community Settings <sup>2</sup>	
PSY 942	Seminar in Community and Organizational Intervention	
PSY 943	Seminar in Prevention <sup>2</sup>	
<b>Practicum Requirements</b>		
Select a minimum of 12 credit hours of the following:		12
PSY 963	Practicum in Clinical Psychology (repeat for a minimum of 9 credit hours)	
PSY 944	Practicum in Community Psychology	
<b>Clinical Elective Courses<sup>3</sup></b>		

Select 3 credit hours in assessment courses	3
Select 6 credit hours in intervention courses	6

<sup>1</sup> A one-year (2,000 hour) clinical internship (APA or APPIC approved) is required. To apply for a clinical internship, students must have completed all required courses, qualifying examinations, and be internship ready as defined by APPIC.

<sup>2</sup> Note: If PSY 941 or PSY 943 is used here it cannot be used to satisfy the clinical elective requirements.

<sup>3</sup> Elective course choice depends on the student's unique professional goals, and is made in consultation with the student's faculty advisor. Students must take sufficient electives to total 101 credit hours.

**Time Limits**

Students should be aware that the Graduate School requires completion of the degree no later than nine years after admission. The psychology department expects all degree-bound students to make satisfactory progress toward the completion of their degree program.

**Applied Learning**

Students in the PhD in psychology program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing a thesis and a dissertation (PSY 908).

**Public Affairs, Hugo Wall School of**

The Hugo Wall School of Public Affairs advances excellence in public and nonprofit management through instruction, research and community service. This approach emphasizes hands-on learning for students pursuing a professional degree. It also affords a special connection with the community through projects and research. At the same time, it builds the capacity of local government and nonprofit organizations. The Hugo Wall School makes a unique contribution to Wichita State University's long-standing commitment of service to Wichita, to the region and to the State of Kansas.

The Hugo Wall School serves as the academic home for the Master of Public Administration degree and the *Environmental Finance Center*. Through these units, faculty, staff and students blend teaching, research and community engagement in this interdisciplinary field of public affairs. Students pursuing the Master of Public Administration (MPA) gain experience through hands-on projects, research and networking with practitioners in the fields of public and nonprofit administration.

**Financial Assistance**

The school has two forms of financial aid available that provide recipients opportunities to be directly involved with research and service projects. Financial aid in the form of graduate assistantships and fellowships is awarded competitively on the recommendation of the faculty in the Hugo Wall School of Public Affairs.

Graduate assistants work 20 hours per week with faculty and professional staff on research and projects.

The Hugo Wall School has five endowed fellowships available for financial assistance to qualifying graduate students enrolled in the Master of Public Administration degree. These fellowships — the Hugo Wall, George Pyle, Mike Hill, George Van Riper and Donna Urbom-McClure — are awarded on a competitive basis to students with exemplary records and specific career interests in the field of public administration.

## Public Administration

### Master of Public Administration

The Master of Public Administration (MPA) degree program, with instruction in public management, public finance and public policy, prepares students for positions of leadership in public and nonprofit organizations. The Master of Public Administration program is accredited by the Network of Schools of Public Policy, Affairs and Administration.

The Master of Public Administration (MPA) degree draws upon the methods and perspectives of the social and behavioral sciences, economics and the humanities. The link between these disciplines and the challenges of public management are emphasized through the use of practitioners in the classroom, policy-relevant research assignments, public affairs seminars and internships. Teaching faculty, with significant professional experience in state and local government, are engaged in cutting-edge research relevant to public and nonprofit organizations in Kansas. This experience allows faculty to bring relevant perspectives on public management into the classroom.

Graduates of the MPA degree program now hold positions of responsibility in state and local government and in nonprofit agencies throughout the United States and in other countries. Graduates serve as city managers and department heads, program managers, finance directors, budget analysts, management analysts and agency planners. Although the majority are employed in public service, some graduates of the program have taken positions in the private sector, while still others have pursued additional study in law, doctoral education or other specializations.

### Programs in Public Administration

- MPA — Master of Public Administration (p. 225)

### Certificates in Public Administration

- Certificate in City and County Management (p. 226)
- Certificate in Economic Development (p. 226)
- Certificate in Nonprofit Management (p. 226)
- Certificate in Public Finance (p. 227)

### Courses in Public Administration

- Public Administration (PADM) (p. 390)

## MPA - Master of Public Administration

The Hugo Wall School of Public Affairs offers a Master of Public Administration (MPA) degree for students who aspire to serve in decision making positions in public and nonprofit organizations. MPA coursework builds skills in the areas of finance, management and policy analysis. A mix of preservice and inservice students participate in the degree program. Preservice students have limited work experience in public or nonprofit management. Inservice students seek advancement while working in a public or nonprofit organization. For this reason, inservice students pursue the degree on a part-time basis.

### Admission

Admission to the Master of Public Administration degree requires students to have completed an undergraduate degree from a regionally accredited college or university and have a grade point of at least a 3.000 (4.000 system) in the last 60 credit hours of coursework, including any postgraduate work. International students must attain a minimum score of 575 paper-based, or 88 internet-based on the Test of English as a Foreign Language (TOEFL), or an overall band score of 7.0 on the IELTS, or a score of 65 on the PTE-Academic.

### Application Requirements

Admission is on a rolling basis but the deadline for consideration for an assistantship or fellowship is February 15 for fall semester.

1. Applicants must submit the online application through the Graduate School website. Students will be asked, as a part of that application, to upload/provide the following:
  - a. Copies of official transcripts from all schools previously attended;
  - b. A letter of application outlining a student's career plans and how the MPA degree would further those plans;
  - c. A resume including the student's work and volunteer experience; and
  - d. Contact information for two people with direct knowledge of a student's work experience or academic performance, to provide letters of reference.

*Note:* Students are required to have an intermediate level of skill or better using word processing, spreadsheet and presentation software programs. Programs such as Word, Excel and PowerPoint, which are provided on the Wichita State University campus, or their equivalents are acceptable. Students can obtain these skills by taking short courses and through other means.

Faculty will consider exceptions to the minimum grade point requirement based on a student's academic record, career plans, work and volunteer experience, and letters of reference. In reviewing requests for exceptions, faculty give consideration to achieving a diverse student body, racially and culturally, and a balance of preservice and inservice students.

### Program Requirements

The Master of Public Administration degree consists of 39 graduate credit hours, taken over at least five semesters of study. The MPA degree is designed for students to begin study in the fall semester. It can be completed online or on campus.

Course	Title	Hours
<b>Core Curriculum</b>		
PADM 701	Public & Nonprofit Governance	3
PADM 702	Research Methods	3
PADM 710	Public Sector Organizational Theory and Behavior	3
PADM 725	Public Management of Human Resources	3
PADM 765	Public Sector Economics	3
PADM 802	Quantitative Methods for Public Sector Professionals	3
PADM 865	Public and Nonprofit Financial Management	3
PADM 895	Public Decision Making	3
<b>Electives</b>		
In addition to the core, students develop a plan of study for 15 credit hours of electives which must be approved by an advisor.		15
Total Credit Hours		39

### Applied Learning

Students in the Master of Public Administration program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by successful completion of the capstone course PADM 895 Public Decision Making.

## Certificate in City and County Management

### Admission

To be considered for admission to the program, applicants must meet the following:

1. A bachelor's degree from a regionally accredited institution;
2. A grade point average of at least 3.000 based upon the last 60 credit hours of coursework (or nearest semester or term break to this), including any postbaccalaureate graduate work.

Applicants who have an earned degree from institutions in countries in which English is not the native language must meet one of the following before being admitted into the program: minimum 88 iBT or equivalent TOEFL score, overall 7.0 IELTS band score, or a 65 on the PTE-Academic.

Prerequisite coursework may be needed to complete courses in the certificate program. These prerequisite courses may be completed after being admitted to the certificate program.

Current graduate students of WSU should complete the *Declaration of Intent to Pursue a Graduate Certificate* form through the Graduate School website (<http://www.wichita.edu/graduate/>)<sup>1</sup>. The admission review faculty may request any of the listed admission requirements before rendering an admission decision. The department requires current students to be in *good standing* prior to requesting entry to the certificate program.

<sup>1</sup> Link opens new window.

### Program Requirements

This graduate certificate offers advanced study in city and county management. It enhances students' career opportunities and provides state and local practitioners in city and county management an avenue to improve skills. To earn this graduate certificate, students must have a 3.000 GPA in the courses that make up the certificate. In addition, students must meet the Graduate School's requirements (p. 41) in order to earn a certificate.

The required courses are:

Course	Title	Hours
PADM 725	Public Management of Human Resources	3
PADM 865	Public and Nonprofit Financial Management	3
PADM 825	State and Local Government Administration	3
PADM 775	State and Local Government Law	3
Total Credit Hours		12

Successful completion of these certificate requirements is noted on the student's university transcript, and a graduate certificate is awarded by Wichita State University.

## Certificate in Economic Development

### Admission

To be considered for admission to the program, applicants must meet the following:

1. A bachelor's degree from a regionally accredited institution;
2. A grade point average of at least 3.000 based upon the last 60 credit hours of coursework (or nearest semester or term break to this), including any postbaccalaureate graduate work.

Applicants who have an earned degree from institutions in countries in which English is not the native language must meet one of the following before being admitted into the program: minimum 88 iBT or equivalent TOEFL score, overall 7.0 IELTS band score, or a 65 on the PTE-Academic.

Prerequisite coursework may be needed to complete courses in the certificate program. These prerequisite courses may be completed after being admitted to the certificate program.

Current graduate students of WSU should complete the *Declaration of Intent to Pursue a Graduate Certificate* form through the Graduate School website (<http://www.wichita.edu/graduate/>)<sup>1</sup>. The admission review faculty may request any of the listed admission requirements before rendering an admission decision. The department requires current students to be in *good standing* prior to requesting entry to the certificate program.

<sup>1</sup> Link opens new window.

### Program Requirements

This graduate certificate program offers advanced study in economic development by local and state government. It enhances students' career opportunities and provides local practitioners in economic development an avenue to improve their skills. To earn this graduate certificate, students must have a 3.000 GPA in the courses that make up the certificate. In addition to these requirements, students must meet the Graduate School's requirements (p. 41) in order to earn this certificate.

The required courses are:

Course	Title	Hours
PADM 765	Public Sector Economics	3
PADM 865	Public and Nonprofit Financial Management	3
PADM 760	State and Local Economic Development	3
PADM 771	Planning Process	3
Total Credit Hours		12

Successful completion of these certificate requirements is noted on the student's university transcript, and a graduate certificate is awarded by Wichita State University.

## Certificate in Nonprofit Management

### Admission

To be considered for admission to the program, applicants must meet the following:

1. A bachelor's degree from a regionally accredited institution;
2. A grade point average of at least 3.000 based upon the last 60 credit hours of coursework (or nearest semester or term break to this), including any postbaccalaureate graduate work.

Applicants who have an earned degree from institutions in countries in which English is not the native language must meet one of the following before being admitted into the program: minimum 88 iBT or equivalent TOEFL score, overall 7.0 IELTS band score, or a 65 on the PTE-Academic.

Prerequisite coursework may be needed to complete courses in the certificate program. These prerequisite courses may be completed after being admitted to the certificate program.

Current graduate students of WSU should complete the *Declaration of Intent to Pursue a Graduate Certificate* form through the Graduate School website (<http://www.wichita.edu/graduate/>)<sup>1</sup>. The admission review faculty may request any of the listed admission requirements before rendering an admission decision. The department requires current students to be in *good standing* prior to requesting entry to the certificate program.

<sup>1</sup> Link opens new window.

### Program Requirements

This graduate certificate program offers advanced study in nonprofit management. The program enhances students' career opportunities and provides practitioners in nonprofit organizations an avenue to improve their skills. To earn this graduate certificate, students must have a 3.000 GPA in the courses that make up the certificate. In addition, students must meet the Graduate School's requirements (p. 41) in order to earn a certificate.

The required courses are:

Course	Title	Hours
PADM 725	Public Management of Human Resources	3
PADM 865	Public and Nonprofit Financial Management	3
PADM 870	Fundraising and Financial Management for Nonprofit Organizations	3
PADM 871	Community Networks	3
Total Credit Hours		12

Successful completion of these certificate requirements is noted on the student's university transcript, and a graduate certificate is awarded by Wichita State University.

## Certificate in Public Finance

### Admission

To be considered for admission to the program, applicants must meet the following:

1. A bachelor's degree from a regionally accredited institution; and
2. A grade point average of at least 3.000 based upon the last 60 credit hours of coursework (or nearest semester or term break to this), including any postbaccalaureate graduate work.

Applicants who have an earned degree from institutions in countries in which English is not the native language must meet one of the following before being admitted into the program: minimum 88 iBT or equivalent TOEFL score, overall 7.0 IELTS band score, or a 65 on the PTE-Academic.

Prerequisite coursework may be needed to complete courses in the certificate program. These prerequisite courses may be completed after being admitted to the certificate program.

Current graduate students of WSU should complete the *Declaration of Intent to Pursue a Graduate Certificate* form through the Graduate School website (<http://www.wichita.edu/graduate/>)<sup>1</sup>. The admission review faculty may request any of the listed admission requirements before rendering an admission decision. The department requires

current students to be in *good standing* prior to requesting entry to the certificate program.

<sup>1</sup> Link opens new window.

### Program Requirements

This graduate certificate program offers advanced study in public finance. The certificate enhances students' career opportunities and provides public finance practitioners an avenue to improve their skills. To earn this graduate certificate, students must have a 3.000 GPA in the courses that make up the certificate. In addition, students must meet the Graduate School's requirements (p. 41) in order to earn a certificate.

The four-course sequence includes:

Course	Title	Hours
PADM 765	Public Sector Economics	3
PADM 865	Public and Nonprofit Financial Management	3
PADM 867	State and Local Government Budgeting	3
PADM 870	Fundraising and Financial Management for Nonprofit Organizations	3
Total Credit Hours		12

Successful completion of these certificate requirements is noted on the student's university transcript, and a graduate certificate is awarded by Wichita State University.

## Religion

### Courses in Religion

- Religion (REL) (p. 404)

*Note:* Although there is no graduate program in religion, these courses may be taken for graduate credit.

## School of Social Work

The Master of Social Work (MSW) degree program has an emphasis in advanced generalist practice and is designed for people who are interested in entering the social work profession at an advanced professional level.

### MSW Program Mission

The mission of the Master of Social Work program at Wichita State University is to prepare graduates for autonomous advanced generalist practice. This mission is accomplished through the preparation of advanced social workers capable of practice in complex, diverse and ever-changing environments. Emphasis is placed on developing evidence-based knowledge and skills for ethical, culturally competent, socially just and empowering interventions on all practice levels.

### Accreditation Status

The MSW program is accredited by the Council on Social Work Education (CSWE).

### Licensure

Graduates of the MSW program are eligible for licensure. Contact the School of Social Work or the Behavioral Sciences Regulatory Board for further information.

### Programs in the School of Social Work

- MSW - Master of Social Work (p. 228)
- Nondegree Programs in Social Work (p. 230)

## Courses in the School of Social Work

- Social Work (SCWK) (p. 404)

## MSW - Master of Social Work

### Regular and Advanced Standing

The School of Social Work offers a regular program of study for applicants not having a baccalaureate degree in social work. In addition to the regular program, the School of Social Work offers an advanced standing program. Advanced standing applicants have already earned an undergraduate degree in social work from an accredited Council on Social Work program. Because of this, students given advanced standing complete fewer credit hours to earn the MSW than students without advanced standing.

### Full- and Part-Time Enrollment Options

The MSW curriculum is highly structured. All courses in either the full-time or part-time regular or advanced standing program must be taken in exact sequence and in the semester in which they are offered as specified in the Master of Social Work course of study plan. Most MSW courses also have specified prerequisites and/or corequisites that must be adhered to before enrolling in subsequent coursework or before entering practicum placement. Most courses are only offered once a year. It is the student's responsibility to follow precisely the course of study plan. Enrolling in courses outside of the sequence or failure to enroll in corequisite courses has an impact on practicum placements and will, at the very least, delay a student's progress toward graduation and may be grounds for termination from the program. No course may be taken outside the student's program plan of study.

### Transfer of Academic Credit

Upon admission to the MSW program, requests for transfer of academic credits from another CSWE accredited MSW program will be considered on a case-by-case basis. Only courses taken in a CSWE accredited Master of Social Work program will be eligible for transfer of credits at the time of admission to the MSW program. No more than 12 total credit hours of graduate social work course credit will be accepted for transfer for either regular or advanced standing applicants. Only foundation level courses such as Micro and Macro Human Behavior in the Social Environment, Social Welfare Policy and Analysis, Fundamentals of Social Work Research and no more than six graduate social work electives, if applicable to WSU's advanced generalist MSW program, will be considered for transfer credit. No transfer credit will be granted for hours completed as part of a practicum or internship placement. Applicants requesting transfers of credit upon admission to the MSW program must have received a grade of *B* or better in the course(s) being considered for transfer, and the course must have been successfully completed within the previous six years prior to the student's enrollment in the MSW program. Pass/fail courses will not be accepted for transfer. See MSW Program Policy and Student Manual for specific guidelines related to transfer of elective credit after full admission to the MSW program.

### Life Experience

In accordance with Council on Social Work Education accreditation requirements, academic credit will not be given for life experience or work experience in coursework or field practicum. There will be no credit towards the social work degree for prior life or work experiences.

### Admission

At the time of admission, applicants must designate their choice to be admitted into either the full-time or the part-time track. Given the highly structured nature of the MSW curriculum, applicants admitted to either the full-time or part-time track are required to remain in that track throughout the course of their studies. Applicants should give careful

consideration and make advanced preparation (work schedule, personal and family responsibilities) before choosing either the full- or part-time option.

Admission to the MSW program requires that the applicant:

1. Have a baccalaureate degree from an accredited four-year institution(s) acceptable to the Graduate School;
2. Have evidence of a liberal arts background from an accredited college or university prior to enrollment. Applicants should be knowledgeable about and committed to the advancement of diversity, humanistic values and ethics, resolving social problems, improving social conditions, and understanding factors shaping human behavior;
3. Have a grade point average of at least 2.750; and
4. Submit completed application to the Graduate School including uploading the MSW Program Application and Personal Narrative, no later than the second Friday in January, at 5 p.m.

### Nonacademic Factors for Admission

Nonacademic considerations include experiences in providing social services, references and personal narratives. Measures of volunteer as well as paid experience in social services contribute to candidate rankings. References are primarily asked to provide an indication of the applicant's suitability for entrance into the profession. Indicators of readiness for graduate studies and of suitability for the profession are drawn from descriptions of life experience, motivation, career goals and values as described in the applicant's personal statement and references.

### Admission Procedure

To be considered for admission, applicants must do the following:

1. Complete the Graduate School Application (<https://slate.wichita.edu/apply/>)<sup>1</sup>.
2. Upload unofficial transcripts from all colleges/universities, and enter the names and emails of three references into the Graduate School Application.
3. Upload the MSW Program Application (<http://wichita.edu/socialwork/mswapp/>)<sup>1</sup> and Personal Statement into the Graduate School Application.

Records are reviewed when all materials have been submitted and received. All supporting documentation and application materials must be included in the Graduate School Application by the second Friday in January deadline. The School of Social Work MSW program does not have a year-round admission review process. Admission review begins shortly after the second Friday in January submission deadline and applicants are notified of their admission status by the Graduate School. Admission review will not begin prior to the second Friday in January application deadline nor after final admission decisions are determined. Incomplete applications are not reviewed.

<sup>1</sup> Link opens new window.

### Program Requirements

The curriculum for the regular MSW program consists of 63 credit hours — 47 credit hours of classroom work and 16 credit hours of supervised practicum. The curriculum for the advanced standing program consists of 37 credit hours — 29 credit hours of classroom work and 8 credit hours of supervised practicum. The 63 credit hours for regular standing students and the 37 credit hours for advanced standing students includes 9 credit hours of graduate-level electives. Social work graduate elective courses are offered in the summer, spring

and fall semesters of each year. Students must maintain a 3.000 grade point average; a grade of 2.000 is the minimum passing grade.

Applicants admitted into the full-time regular program enroll in a designated summer course and four full-time semesters, consisting of 12–14 credit hours a semester, not counting summer semester. All students, regular and advanced standing, are required to take SCWK 760 in the summer semester.

Applicants admitted into the part-time regular program must enroll in 6–10 credit hours a semester, and complete the degree within four years. Applicants admitted into the part-time advanced standing program must complete degree requirements in two years.

### Advanced Standing Program

Course	Title	Hours
SCWK 760	Advanced Generalist Practice Seminar I	1
SCWK 810	Cultural Competency for Advanced Generalist Practice	3
SCWK 816	Advanced Generalist Practice With Individuals	3
SCWK 817	Policy II: Advocacy and Social Justice	3
SCWK 822	Field Practicum III <sup>1</sup>	4
SCWK 823	Field Practicum IV <sup>1</sup>	4
SCWK 833	Advanced Generalist Practice with Families and Groups	3
SCWK 851	Applied Social Work Research	3
SCWK 860	Advanced Generalist Practice Administrating Organizations and Communities	3
SCWK 899	Advanced Generalist Practice Seminar II	1
Concentration Electives — Select 9 credit hours of graduate-level electives		9
Total Credit Hours		37

### Regular Program

Course	Title	Hours
SCWK 700	Foundations of Generalist Practice I	3
SCWK 702	Foundations of Generalist Practice II	3
SCWK 710	Micro Human Behavior and the Social Environment	3
SCWK 712	Macro Human Behavior and the Social Environment	3
SCWK 717	Policy I: Social Welfare and Analysis	3
SCWK 720	Field Practicum I <sup>1</sup>	4
SCWK 721	Field Practicum II <sup>1</sup>	4
SCWK 751	Fundamentals of Social Work Research	3
SCWK 760	Advanced Generalist Practice Seminar I	1
SCWK 810	Cultural Competency for Advanced Generalist Practice	3
SCWK 816	Advanced Generalist Practice With Individuals	3
SCWK 817	Policy II: Advocacy and Social Justice	3
SCWK 822	Field Practicum III <sup>1</sup>	4
SCWK 823	Field Practicum IV <sup>1</sup>	4

SCWK 833	Advanced Generalist Practice with Families and Groups	3
SCWK 851	Applied Social Work Research	3
SCWK 860	Advanced Generalist Practice Administrating Organizations and Communities	3
SCWK 899	Advanced Generalist Practice Seminar II	1
Concentration Electives — Select 9 credit hours of graduate-level electives		9
Total Credit Hours		63

<sup>1</sup> The Field Practicum courses require the following supervised hours in a social work setting:

- SCWK 720: 240 hrs. (15 hrs. a week over 16 weeks)
- SCWK 721: 240 hrs. (15 hrs. a week over 16 weeks)
- SCWK 822: 350 hrs. (21–23 hrs. a week over 16 weeks)
- SCWK 823: 350 hrs. (21–23 hrs. a week over 16 weeks)

### Field Practicum Requirements

Students enrolled in the regular MSW program (63 credit hours) will be required to complete a total of 1180 agency-based clock hours in Field Practicum placement during their course of study. For their foundation year practicum, 240 hours per semester or 480 total hours of field experience are required; for the advanced generalist year practicum, 350 hours per semester or 700 total hours are required. Students enrolled in the Advanced Generalist Practicum will complete 350 agency-based clock hours per semester or 700 total hours. Admission to social work practice and practicum classes is absolutely restricted to social work students who have been formally admitted to Foundation or Advanced Generalist Practicum.

### Thesis Option

Students are not required to complete a thesis, but do have the option of completing a thesis as part of their MSW degree. The thesis option requires a total of 3 credit hours of thesis coursework (SCWK 800). Students must be enrolled in at least 1 credit hour of thesis during the semester of graduation. Thesis hours can count toward the required 9 credit hours of electives. Students who are interested in the thesis option should discuss their interest with the MSW program director prior to enrolling in the advanced (800-level or higher) curriculum.

### Applied Learning

**MSW Regular Program (first year):** Students in the MSW regular program are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing a practicum experience in SCWK 720 and SCWK 721.

These classes have both an on-campus seminar that reflects on experiences in the 480 hours combined of required supervised placement in a social service agency in the Wichita community, or the student's own community if possible. Each student must meet with a field instructor at the agency for supervision and attend a university class with a field liaison that provides the reflective feedback for the educational tie to the Council on Social Work Education's — Education Policy and Accreditation Standards.

**MSW Advanced Standing Program and Regular Program (second year):** Students in the MSW advanced standing program and the regular program (second year) are required to complete an applied learning or research experience to graduate from the program. The requirement can be met by completing a practicum experience in SCWK 822 and SCWK 823.

These classes have both an on-campus seminar that reflects on experiences in the 700 hours combined of required supervised placement in a social service agency in the Wichita community, or the student's own community if possible. Each student must meet with a field instructor at the agency for supervision and attend a university class with a field liaison that provides the reflective feedback for the educational tie to the Council on Social Work Education's — Education Policy and Accreditation Standards.

## Nondegree Program in Social Work

### Nondegree Students

Persons who already possess a graduate degree, who do not want to seek an additional graduate degree at this time, or who wish to take graduate courses for professional advancement or personal satisfaction must apply for nondegree admission with the Wichita State University Graduate School. Students wishing to enroll in select graduate social work courses in a nondegree category may do so on a space available basis. Under such nondegree admission, students may take up to a maximum of 12 credit hours of MSW graduate credit in only the following specified foundation level courses including:

Course	Title	Hours
SCWK 710	Micro Human Behavior and the Social Environment	3
SCWK 712	Macro Human Behavior and the Social Environment	3
SCWK 717	Policy I: Social Welfare and Analysis	3
SCWK 751	Fundamentals of Social Work Research	3
700-level MSW graduate electives when offered		
Total Credit Hours		12

Students wishing to seek full admission to the MSW program must follow the normal admission procedures for both the Graduate School and the School of Social Work. Enrolling and successfully completing any or all of the above specified courses as a nondegree student does not automatically guarantee full admission to the MSW program.

A maximum of only 12 credit hours taken prior to acceptance and full admission to the MSW program may be applied toward the MSW degree. Only students fully admitted into the MSW program may enroll in practice and field practicum courses.

## Sociology

### Master of Arts

The sociology department offers courses of study leading to the Master of Arts (MA) degree with options for thesis and nonthesis programs. The sociology MA program offers a structured two-year series of courses that provide a strong foundation in sociological theory, research methods and statistics.

WSU's sociology department emphasizes a social justice perspective, and students develop insights about the effects of social structures on individual lives and communities. For example, faculty research focuses on issues such as teen dating violence, sexual minority well-being, runaway youth, gentrification, educational policy and caregiving in later life. Programs prepare students for employment in a number of different fields; graduates work in a number of different research positions and non-profit agencies, and many have gone on to competitive PhD programs across the nation.

To learn more about the program, please visit the sociology department webpage (<http://wichita.edu/sociology/>)<sup>1</sup>.

Questions? Contact the graduate coordinator:  
jennifer.pearson@wichita.edu.

<sup>1</sup> Link opens new window.

### Programs in Sociology

- MA in Sociology (p. 230)

### Courses in Sociology

- Sociology (SOC) (p. 410)

## MA in Sociology

### Admission

In addition to the Graduate School requirements for admission, the department of sociology requires:

1. A grade point average of at least 3.000 overall;
2. One college algebra course and at least 12 credit hours in social science courses including an introductory sociology course, one social statistics course, one research methods course, and one theory course. Students without these required courses in social statistics and/or theory may be admitted provisionally, but deficiencies must be removed in the first year of graduate study;
3. Three letters of reference from professors who are familiar with the student's undergraduate coursework; and
4. A typed, double-spaced statement of purpose (approximately 500 words) articulating the student's area of research interests and academic/career goals.

Application for admission should be filed with the Graduate School and the sociology department by March 1 for enrollment the following fall. Students applying later may be considered if any openings in the program remain.

### Program Requirements

Students pursuing the MA degree in sociology may follow either a thesis or a nonthesis program. Sixty percent of the credit hours in either program must be 700 level or above.

### Thesis Program

Students in the thesis program must take a total of 32 credit hours, including:

Course	Title	Hours
SOC 860	Proseminar - Sociology	3
SOC 811	Advanced Research: Quantitative Methods	3
SOC 812	Advanced Research: Qualitative Methods	3
SOC 845	Seminar in Sociological Theory	3
SOC 875	Thesis <sup>1</sup>	3
SOC 876	Thesis <sup>1</sup>	3
Select sufficient electives (500-level or above) to total 32 credit hours including:		14
One 800-level graduate seminar		
Total Credit Hours		32

<sup>1</sup> A maximum of 6 thesis credit hours can be counted toward program requirements.

### Nonthesis Program

Students in the nonthesis program must take a total of 32 credit hours, including:

Course	Title	Hours
SOC 860	Proseminar - Sociology	3
SOC 811	Advanced Research: Quantitative Methods	3
SOC 812	Advanced Research: Qualitative Methods	3
SOC 845	Seminar in Sociological Theory	3
Complete 6 credit hours of the following courses:		6
SOC 851	Directed Project	
SOC 781N	Sociological Practice Internship	
Select sufficient electives (500-level or above) to total 32 credit hours, including:		14
Two 800-level graduate seminars		
Total Credit Hours		32

### ***Examinations***

Students electing the thesis program in sociology must pass an oral defense of the thesis. The maximum number of attempts is two. Any student who does not pass the oral defense on the first attempt may choose to switch to the nonthesis program or to make a second attempt at the oral defense. A student who does not pass the second attempt will be terminated from the program without a degree.

### ***Applied Learning***

Students enrolled in the MA in sociology program are required to complete an applied learning or research experience to graduate. For thesis-track students, the requirement can be met by completing a master's thesis and oral defense. For nonthesis-track students, this can be achieved through the completion of the directed project or sociological practice internship.

## **Women's Studies**

While a graduate degree in women's studies is not offered, coursework in women's studies may be included in other areas, such as the community and clinical programs in psychology. Students may orient course electives and thesis research to accommodate an interest in women's studies.

### **Courses in Women's Studies**

- Women's Studies (WOMS) (p. 417)



## Graduate Faculty

(as of January 21, 2021)

See "Graduate Faculty" (p. 17) for more information about graduate faculty membership.

### A

**Abdinnour, Suhair H.**, Omer Professor in Business and Department Chair, Department of Finance, Real Estate, and Decision Sciences (1998). BS, Birzeit University, 1983; MS, Southampton University, 1988; PhD, Indiana University, 1994.

**Adler, Edward T.**, Associate Professor, School of Art, Design and Creative Industries (2005). BA, Lewis and Clark College, 1993; MFA, Ohio University, 2002.

**Aghaie, Sina**, Assistant Professor, Department of Marketing (2019). BS, Sharif University of Technology, 2008; MBA, 2011; PhD, University of South Carolina, 2019.

**Ahmed, Ikramuddin**, Associate Professor, Department of Mechanical Engineering (2000). BSME, Bangladesh University of Engineering and Technology, 1988; MSME, University of Texas-Austin, 1993; PhD, 1997.

**Alagic, Mara**, Professor, School of Education (1993). BS, University of Belgrade, 1970; MS, 1975; PhD, 1985.

**Allen, Neal R.**, Associate Professor, Department Chair and UG Coordinator, Department of Political Science (2011). BA, DePauw University, 1998; MA, University of Texas-Austin, 2001; PhD, 2009.

**Amos, Brian M.**, Assistant Professor, Department of Political Science (2019). BA, Cornell University, 2007; MA, University of Florida, 2013; PhD, 2018.

**Aravinthan, Visvakumar**, Associate Professor, Department of Electrical Engineering and Computer Science (2011). BS, University of Moratuwa-Sri Lanka, 2002; MS, 2005; MS, Wichita State University, 2006; PhD, 2010.

**Arnold, Stephen D.**, Professor, Department of Public Health Sciences (2011). BS, New Mexico State University, 1984; PhD, Colorado State University Fort-Collins, 1989.

**Asaduzzaman, Abu**, Associate Professor, Department of Electrical Engineering and Computer Science (2010). BS, Bangladesh University of Engineering and Technology, 1993; MS, Florida Atlantic University, 1997; PhD, 2009.

**Askari, Davood**, Associate Professor, Department of Mechanical Engineering (2013). MS, Eastern Mediterranean University, 2002; PhD, University of Hawaii-Manoa, 2009.

**Asmatulu, Eylem**, Assistant Professor, Department of Mechanical Engineering (2015). BS, Cukurova University, Institute of Science and Technology, 2002; MS, 2004; PhD, Wichita State University, 2013.

**Asmatulu, Ramazan**, Professor, Department of Mechanical Engineering (2006). BS, Istanbul Technical University, 1992; MS, 1995; PhD, Virginia Polytechnic Institute and State University, 2001.

**Azpuru, Dinorah**, Professor, Department of Political Science (2005). Certificate, University Institute of Development, Geneva-Switzerland, 1986; Diploma, Uppsala University-Sweden, 1989; MA, University

Rafael Landivar-Guatemala, 1993; MA, University of Pittsburgh, 2000; PhD, 2003.

### B

**Bagai, Rajiv**, Professor, Department of Electrical Engineering and Computer Science (1990). MS, Birla Institute of Technology and Science, 1983; MS, University of Victoria, 1987; PhD, 1990.

**Baker, Carl E.**, Associate Professor and Technical Director, School of Performing Arts (2005). BA, Wichita State University, 1988; MFA, Ohio University, 1991.

**Baldridge, Wilson R.**, Professor and Department Chair, Department of Modern and Classical Languages and Literatures (1984). BA, Denison University, 1973; PhD, State University of New York-Buffalo, 1982.

**Baldwin, Carryl L.**, Carl and Rozina Cassat Professorship in Aging and Director of Regional Institute on Aging, Department of Psychology (2019). BA, University of Nebraska, 1987; MA, University of South Dakota-Vermillion, 1994; PhD, 1997.

**Ballout, Laila K.**, Assistant Professor, Department of History (2019). BA, University of New Hampshire, 2008; MA, Northwestern University, 2009; PhD, 2017.

**Bann, James G.**, Associate Professor and Undergraduate Coordinator, Department of Chemistry (2004). BS, Ft. Lewis College, 1993; PhD, Oregon Health Sciences University, 2000.

**Bannister, Andra J.**, Professor and Director, School of Criminal Justice (1996). BS, University of Illinois Urbana-Champaign, 1989; MA, Indiana University-Bloomington, 1990; PhD, Michigan State University, 1995.

**Barut, Mehmet**, Professor, Department of Finance, Real Estate, and Decision Sciences (2000). BS, Istanbul Technical University, 1988; MS, 1991; PhD, Clemson University, 1999.

**Bechtold, Rebecca B.**, Associate Professor and Graduate Studies Coordinator, Department of English (2013). BA, Knox College, 2005; MA, University of Illinois Urbana-Champaign, 2007; PhD, 2012.

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## H

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## I

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## J

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## K

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## L

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## T

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## V

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**Z**

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## Key to Abbreviations and Symbols

### Symbols

The number of hours of credit for each course is indicated in parentheses following the course title. The number of class meetings per week is normally the same as the number of credit hours. Two hours of laboratory work usually are required for 1 hour of credit. In courses involving meetings other than lectures, the following terms are used:

- Classroom
- Conference
- Demonstration
- Laboratory
- Lecture
- Practicum/Clinical<sup>1</sup>
- Theory

<sup>1</sup> Practicum/clinical — the hours of practicum/clinical per week are given in front (6–8 Practicum or 6–8 Clinical means six to eight hours of practicum/clinical per week).

### Abbreviations

The following abbreviations of academic departments and subject areas are used in references to courses offered by those departments.

ACCT	Accounting
AE	Aerospace Engineering
AGE	Aging Studies
ANTH	Anthropology
ARAB	Arabic
ARTE	Art Education
ARTF	Art and Design Foundation
ARTG	Graphic Design
ARTH	Art History
ARTS	Studio Arts
BADM	General Business Administration
BIOL	Biological Sciences
BLAW	Business Law
BME	Biomedical Engineering
BSAN	Business Analytics
CAS	Applied Studies
CESP	Counseling, Educational and School Psychology
CHEM	Chemistry
CHIN	Chinese
CI	Curriculum and Instruction
CJ	Criminal Justice
CLES	Counseling, Educational Leadership, Educational and School Psychology
COMM	Communication
CS	Computer Science
CSD	Communication Sciences and Disorders
DANC	Dance
DH	Dental Hygiene
DS	Decision Sciences
ECON	Economics

EDUC	Education
EE	Electrical Engineering
EEPS	Earth, Environmental and Physical Sciences
EL	Educational Leadership
EMBA	Executive Master of Business Administration
ENGL	English Language and Literature
ENGR	General Engineering
ENGT	Engineering Technology
ENTR	Entrepreneurship
ETHS	Ethnic Studies
FA	Fine Arts — General
FIN	Finance
FREN	French
FS	Forensic Science
GEOG	Geography
GEOL	Geology
GERM	German
GREK	Greek
HA	Health Administration
HIST	History
HLS	Homeland Security
HNRS	Honors Program
HP	Health Professions — General
HPS	Human Performance Studies
HRM	Human Resource Management
HS	Health Sciences
IB	International Business
ID	Innovative Design
IME	Industrial and Manufacturing Engineering
ITAL	Italian
JAPN	Japanese
LASI	Liberal Arts Interdisciplinary
LATN	Latin
LING	Linguistics
MART	Media Arts
MATH	Mathematics
MBA	Master of Business Administration
MCLL	Modern and Classical Languages and Literature
ME	Mechanical Engineering
MGMT	Management
MILS	Military Science
MIS	Management Information Systems
MKT	Marketing
MLS	Medical Laboratory Sciences
MUSA	Applied Music
MUSC	Musicology-Composition
MUSE	Music Education
MUSP	Music Performance
NURS	Nursing
PA	Physician Assistant

PADM	Public Administration
PC	Personal Computing
PHIL	Philosophy
PHS	Public Health Sciences
PHYS	Physics
POLS	Political Science
PSY	Psychology
PT	Physical Therapy
RE	Real Estate and Land Use Economics
REL	Religion
RUSS	Russian
SCWK	Social Work
SMGT	Sports Management
SOC	Sociology
SPAN	Spanish
STAT	Statistics
THEA	Theatre
WOMS	Women's Studies
WSUA	First-Year Seminar: Liberal Arts and Sciences
WSUB	First-Year Seminar: Business
WSUD	First-Year Seminar: Education
WSUE	First-Year Seminar: Engineering
WSUF	First-Year Seminar: Fine Arts
WSUH	First-Year Seminar: Health Professions
WSUN	First-Year Seminar: Honors

## Degrees and Academic Majors

When viewing online, click any column title to sort the table by program, type, department, college or online learning availability.

Academic Program	Program Type	Department	College	Online Learning
Accountancy (p. 104)	MACC	Accounting	BA	
Accountancy - Accounting Information Systems Concentration (p. 105)	MACC	Accounting	BA	
Accountancy - Taxation Concentration (p. 106)	MACC	Accounting	BA	
Additive Manufacturing (p. 151)	Certificate	Industrial, Systems, and Manufacturing Engineering	EN	
Administrator- in-Training (AIT) (p. 187)	Practicum Placement Program	Public Health Sciences	HP	
Advanced Composite Materials (p. 131)	Certificate	Aerospace Engineering	EN	
Aerospace Engineering (p. 132)	PhD	Aerospace Engineering	EN	
Aerospace Engineering (p. 133)	MS	Aerospace Engineering	EN	
Aging Studies (p. 187)	MA	Public Health Sciences	HP	Yes
Aging Studies (p. 191)	Dual/Accelerated Bachelor's to Master's	Public Health Sciences	HP	Yes
Aging Studies (p. 192)	Certificate	Public Health Sciences	HP	Yes
Aging Studies (p. 193)	Graduate Emphasis	Public Health Sciences	HP	
Anthropology (p. 203)	MA	Anthropology	LA	
Applied Behavior Analysis (ABA) (p. 87)	Certificate	Counseling, Educational Leadership, AS Educational and School Psychology		
Applied Mathematics (p. 216)	PhD	Mathematics, Statistics and Physics	LA	
Arts Leadership and Management (p. 161)	MA	Fine Arts, College of	FA	Yes
Audiology (p. 179)	AuD	Communication Sciences and Disorders	HP	
Biological Sciences (p. 205)	MS	Biological Sciences	LA	
Biomaterials and Tissue Engineering (p. 136)	Certificate	Biomedical Engineering	EN	
Biomedical Engineering (p. 134)	PhD	Biomedical Engineering	EN	
Biomedical Engineering (p. 135)	MS	Biomedical Engineering	EN	
Biomedical Engineering (p. 135)	Dual/Accelerated Bachelor's to Master's	Biomedical Engineering	EN	
Building-Level Leadership/Principal (p. 78)	Certificate	Counseling, Educational Leadership, AS Educational and School Psychology		
Business Administration (p. 108)	MBA	Graduate Studies in Business	BA	Yes
Business Administration - Business Analytics and Information Management Concentration (p. 109)	MBA	Graduate Studies in Business	BA	
Business Administration - Entrepreneurship & Innovation Concentration (p. 110)	MBA	Graduate Studies in Business	BA	
Business Administration - Executive MBA (p. 117)	EMBA	Graduate Studies in Business	BA	
Business Administration - Finance Concentration (p. 111)	MBA	Graduate Studies in Business	BA	
Business Administration - Health Care Administration Concentration (p. 112)	MBA	Graduate Studies in Business	BA	
Business Administration - Human Resource Management Concentration (p. 113)	MBA	Graduate Studies in Business	BA	

Business Administration - Marketing Concentration (p. 115)	MBA	Graduate Studies in Business	BA	
Business Administration - MEM to MBA (p. 117)	MBA	Graduate Studies in Business	BA	
Business Administration - Supply Chain Management (p. 116)	MBA	Graduate Studies in Business	BA	
Business Analytics (p. 121)	MS	Finance, Real Estate and Decision Sciences	BA	
Business Analytics (p. 125)	Certificate	Finance, Real Estate and Decision Sciences	BA	
Business Fundamentals, Advanced (p. 125)	Certificate	Graduate Studies in Business	BA	Yes
Business Fundamentals (p. 125)	Certificate	Graduate Studies in Business	BA	Yes
Chemistry (p. 206)	PhD	Chemistry	LA	
Chemistry (p. 207)	MS	Chemistry	LA	
Child/Play Therapy (p. 73)	Certificate	Counseling, Educational Leadership, AS Educational and School Psychology		
City and County Management (p. 226)	Certificate	Public Administration	LA	Yes
Clinical Mental Health Counselor to School Counselor (p. 73)	Certificate	Counseling, Educational Leadership, AS Educational and School Psychology		
Communication (p. 208)	MA	Communication, Elliott School of	LA	
Communication Sciences and Disorders (p. 178)	PhD	Communication Sciences and Disorders	HP	
Communication Sciences and Disorders (p. 181)	MA	Communication Sciences and Disorders	HP	
Computational Data Science (p. 140)	Certificate	Computing, School of	EN	
Computer Networking (p. 140)	Certificate	Computing, School of	EN	
Computer Science (p. 137)	MS	Computing, School of	EN	
Computer Science (p. 139)	Dual/Accelerated Bachelor's to Master's	Computing, School of	EN	
Computing (p. 138)	MS	Computing, School of	EN	
Computing (p. 140)	Dual/Accelerated Bachelor's to Master's	Computing, School of	EN	
Counseling (p. 70)	MEd	Counseling, Educational Leadership, AS Educational and School Psychology		
Creative Writing (p. 212)	MFA <sup>1</sup>	English Language and Literature	LA	
Criminal Justice (p. 208)	MA	Criminal Justice	LA	Yes
Data Science (p. 139)	MS	Computing, School of	EN	
Earth, Environmental and Physical Sciences (p. 209)	MS	Earth, Environmental and Physical Sciences	LA	
Economic Development (p. 226)	Certificate	Public Administration	LA	Yes
Economics (p. 118)	MA	Economics	BA	
Economics - Data Analytics (p. 119)	MA	Economics	BA	
Economics - Financial Economics (p. 120)	MA	Economics	BA	
Economics - International Economics (p. 120)	MA	Economics	BA	
Educational Leadership (p. 75)	EdD	Counseling, Educational Leadership, AS Educational and School Psychology		
Educational Leadership (p. 77)	MEd	Counseling, Educational Leadership, AS Educational and School Psychology		
Educational Leadership - Educational Psychology (p. 76)	EdD	Counseling, Educational Leadership, AS Educational and School Psychology		
Educational Psychology (p. 81)	MEd	Counseling, Educational Leadership, AS Educational and School Psychology		

Electrical and Computer Engineering (p. 143)	MS	Electrical and Computer Engineering	EN	
Electrical and Computer Engineering (p. 144)	Dual/Accelerated Bachelor's to Master's	Electrical and Computer Engineering	EN	
Electrical Engineering and Computer Science (p. 142)	PhD	Electrical and Computer Engineering	EN	
Engineering Education (p. 83)	Certificate	Counseling, Educational Leadership, AS Educational and School Psychology		
Engineering Education (p. 131)	Certificate	Engineering	EN	
Engineering Management (p. 147)	MEM	Industrial, Systems, and Manufacturing Engineering	EN	
Engineering Management (p. 151)	Dual/Accelerated Bachelor's to Master's	Industrial, Systems, and Manufacturing Engineering	EN	
English (p. 211)	MA	English Language and Literature	LA	
English (p. 213)	Dual/Accelerated Bachelor's to Master's	English Language and Literature	LA	
English Literature and Composition Pedagogy (p. 213)	Certificate	English Language and Literature	LA	Yes
Entrepreneurship and Innovation (p. 126)	Certificate	Management	BA	
Exercise Science (p. 88)	MEd	Human Performance Studies	AS	
Exercise Science (p. 89)	Dual/Accelerated Bachelor's to Master's	Human Performance Studies	AS	
Foundations of Six Sigma and Quality Improvement (p. 152)	Certificate	Industrial, Systems, and Manufacturing Engineering	EN	
Functional Aging (p. 90)	Certificate	Human Performance Studies	AS	
Great Plains Studies (p. 215)	Certificate	Interdisciplinary Liberal Arts and Sciences	LA	
Health Administration (p. 189)	MHA	Public Health Sciences	HP	Yes
Health Administration (p. 191)	Dual/Accelerated Bachelor's to Master's	Public Health Sciences	HP	Yes
Health Administration (p. 192)	Certificate	Public Health Sciences	HP	Yes
Higher Education Leadership (p. 79)	Certificate	Counseling, Educational Leadership, AS Educational and School Psychology		
Hispanic Cultural Studies (p. 221)	Certificate	Modern and Classical Languages and Literatures	LA	
History (p. 214)	MA	History	LA	
History - Thesis Program in Local and Community History (p. 215)	MA	History	LA	
Human Resource Management (p. 121)	MHRM	Management	BA	Yes
Human Resource Management (p. 124)	Dual/Accelerated Bachelor's to Master's	Management	BA	
Human Resource Management Decision Making (p. 126)	Certificate	Management	BA	Yes
Human Resource Management Skills (p. 126)	Certificate	Management	BA	Yes
Industrial Engineering (p. 146)	PhD	Industrial, Systems, and Manufacturing Engineering	EN	
Industrial Engineering (p. 148)	MS	Industrial, Systems, and Manufacturing Engineering	EN	
Industrial Engineering (p. 150)	Dual/Accelerated Bachelor's to Master's	Industrial, Systems, and Manufacturing Engineering	EN	
Information Assurance and Cybersecurity (p. 141)	Certificate	Computing, School of	EN	
Innovation Design (p. 201)	MID	Innovation and Design	ID	

Instructional Design in Professional Practice (p. 98)	Certificate	Education, School of	AS	
Interdisciplinary STEM Education (p. 98)	Certificate	Education, School of	AS	
Lean Systems (p. 152)	Certificate	Industrial, Systems, and Manufacturing Engineering	EN	
Learning and Instructional Design (p. 92)	MEd	Education, School of	AS	Yes
Literacy (p. 99)	Certificate	Education, School of	AS	
Management Science and Supply Chain Management (p. 123)	MS	Finance, Real Estate and Decision Sciences (Interdisciplinary)	BA	
Management Science and Supply Chain Management (p. 123)	MS	Industrial, Systems, and Manufacturing Engineering (Interdisciplinary)	EN	
Management Science and Supply Chain Management - MS to MBA Program (p. 117)	MBA	Graduate Studies in Business	BA	
Management Science and Supply Chain Management (p. 124)	Dual/Accelerated Bachelor's to Master's	Business Administration	BA	
Mathematical Foundations of Data Analysis (p. 217)	MS	Mathematics, Statistics and Physics	LA	
Mathematical Foundations of Data Analytics (p. 219)	Certificate	Mathematics, Statistics and Physics	LA	
Mathematics (p. 218)	MS	Mathematics, Statistics and Physics	LA	
Mathematics and Statistics (p. 219)	Dual/Accelerated Bachelor's to Master's	Mathematics, Statistics and Physics	LA	
Mechanical Engineering (p. 153)	PhD	Mechanical Engineering	EN	
Mechanical Engineering (p. 155)	MS	Mechanical Engineering	EN	
Mechanical Engineering (p. 158)	Dual/Accelerated Bachelor's to Master's	Mechanical Engineering	EN	
Mentoring and Coaching (p. 99)	Certificate	Education, School of	AS	Yes
Museum Studies (p. 205)	Certificate	Anthropology	LA	
Music (p. 169)	MM	Music, School of	FA	
Music Education - Choral Music Concentration (p. 165)	MME	Music Education	FA	
Music Education - Elementary Music Concentration (p. 165)	MME	Music Education	FA	
Music Education - Kodaly Method (p. 168)	Certificate	Music Education	FA	
Music Education - Instrumental Conducting Concentration (p. 166)	MME	Music Education	FA	
Music Education - Instrumental Music Concentration (p. 166)	MME	Music Education	FA	
Music Education - Music in Special Education Concentration (p. 167)	MME	Music Education	FA	
Music Education - Special Music Education - Adaptive Music (p. 168)	Certificate	Music Education	FA	
Music Education - Voice Concentration (p. 167)	MME	Music Education	FA	
Music - Chamber Music Concentration (p. 169)	MM	Music Performance	FA	
Music - Composition Concentration (p. 175)	MM	Musicology-Composition	FA	
Music - Conducting Concentration (p. 170)	MM	Music Performance	FA	
Music - History-Literature Concentration (p. 176)	MM	Musicology-Composition	FA	

Music - Opera Performance Concentration (p. 170)	MM	Music Performance	FA	
Music - Performance Concentration - Organ Emphasis (p. 173)	MM	Music Performance	FA	
Music - Performance Concentration - Piano Emphasis (p. 173)	MM	Music Performance	FA	
Music - Performance Concentration - Strings, Winds and Percussion Emphasis (p. 174)	MM	Music Performance	FA	
Music - Performance Concentration - Voice Emphasis (p. 174)	MM	Music Performance	FA	
Music - Piano Accompanying Concentration (p. 171)	MM	Music Performance	FA	
Music - Piano Pedagogy Concentration (p. 171)	MM	Music Performance	FA	
Music Performance - Professional Studies in (p. 175)	Certificate	Music Performance	FA	
Nano Engineering (p. 158)	Certificate	Mechanical Engineering	EN	
Nonprofit Management (p. 226)	Certificate	Public Administration	LA	Yes
Nursing - Adult - Gerontology Acute Care Nurse Practitioner (p. 194)	DNP	Nursing, School of	HP	
Nursing - Family Nurse Practitioner (p. 195)	DNP	Nursing, School of	HP	
Nursing - Individual/Family Focus (p. 197)	DNP	Nursing, School of	HP	Yes
Nursing - Nursing Education (p. 198)	MSN	Nursing, School of	HP	Yes
Nursing - Nursing Leadership and Administration (p. 199)	MSN	Nursing, School of	HP	
Nursing - Psychiatric/Mental Health Nurse Practitioner (p. 196)	DNP	Nursing, School of	HP	
Nursing - RN to MSN (p. 199)	Dual/Accelerated Bachelor's to Master's	Nursing, School of	HP	
Online Learning and Educational Technology (p. 100)	Certificate	Education, School of	AS	Yes
Physical Therapy (p. 183)	DPT	Physical Therapy	HP	
Physician Assistant (p. 185)	MPA	Physician Assistant	HP	
Physics (p. 218)	MS	Mathematics, Statistics and Physics	LA	
Psychology (p. 222)	PhD	Psychology	LA	
Public Administration (p. 225)	MPA	Public Administration	LA	Yes
Public Finance (p. 227)	Certificate	Public Administration	LA	Yes
Public Health (p. 193)	Certificate	Public Health Sciences	HP	Yes
School Counselor to Clinical Mental Health Counselor (p. 74)	Certificate	Counseling, Educational Leadership, AS Educational and School Psychology	AS	
School Psychology - Postmaster's (p. 85)	EdS	Counseling, Educational Leadership, AS Educational and School Psychology	AS	
School Psychology - Postbaccalaureate (p. 84)	EdS	Counseling, Educational Leadership, AS Educational and School Psychology	AS	
Social Work (p. 228)	MSW	Social Work, School of	LA	
Sociology (p. 230)	MA	Sociology	LA	
Software Engineering (p. 141)	Certificate	Computing, School of	EN	
Space Science (p. 220)	Certificate	Mathematics, Statistics and Physics	LA	Yes
Spanish (p. 220)	MA	Modern and Classical Languages and Literatures	LA	
Spanish (p. 221)	Dual/Accelerated Bachelor's to Master's	Modern and Classical Languages and Literatures	LA	

Spanish for the Professions (p. 222)	Certificate	Modern and Classical Languages and Literatures	LA	
Special Education - Early Childhood Unified (p. 93)	MEd	Education, School of	AS	Yes
Special Education - High Incidence (p. 94)	MEd	Education, School of	AS	Yes
Special Education - High Incidence, Alternative Certification (p. 96)	MEd	Education, School of	AS	Yes
Special Education - Low Incidence (p. 97)	MEd	Education, School of	AS	Yes
Sport Management (p. 100)	MEd	Sport Management	AS	
Studio Art (p. 162)	MFA <sup>1</sup>	Studio Art	FA	
Superintendency/District Leadership (p. 80)	Certificate	Counseling, Educational Leadership, Educational and School Psychology	AS	Yes
Supply Chain Management (p. 127)	Certificate	Finance, Real Estate and Decision Sciences	BA	
Supply Chain Management (p. 152)	Certificate	Industrial, Systems, and Manufacturing Engineering	EN	
Systems Engineering and Management (p. 152)	Certificate	Industrial, Systems, and Manufacturing Engineering	EN	
Teaching - Early Childhood Unified Residency (p. 91)	MAT	Education, School of	AS	Yes
Teaching - Transition to Teaching Track (p. 91)	MAT	Education, School of	AS	

<sup>1</sup> Master of Fine Arts, a terminal degree

## Courses A - Z

### ACCT - Accounting

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

#### ACCT 580. Data Analytics for Accountants (3).

Application-oriented study of data analytics as it pertains to accounting professionals. Emphasizes improving students' software, critical thinking, and decision-making skills. Prerequisite(s): ACCT 360 with a grade of C (2.000) or better, advanced standing, junior standing.

#### ACCT 610. Financial Accounting and Reporting: Special Entities and Complex Issues (3).

Examines accounting concepts and techniques related to consolidated statements, governmental and not-for-profit entities, and partnerships. Includes accounting for foreign currency, hedges, financial instruments and emerging issues in financial accounting and reporting. Prerequisite(s): completion of ACCT 410 with a grade of C (2.000) or better, advanced standing, junior standing.

#### ACCT 630. Taxation of Business Entities (3).

Studies the federal tax law as it applies to corporations, partnerships and other business entities. Examines the effect of taxation on business decisions. Prerequisite(s): completion of ACCT 430 with a grade of C (2.000) or better, advanced standing, junior standing.

#### ACCT 640. Principles of Auditing (3-4).

Studies the auditor's attest function, emphasizing auditing standards and procedures, independence, legal responsibilities, codes of ethical conduct and evaluation of accounting systems and internal control. Prerequisite(s): completion of ACCT 410 and 580 with a grade of C (2.000) or better, advanced standing, junior standing.

#### ACCT 690. Seminar in Selected Topics (1-3).

Umbrella course created to explore a variety of subtopics differentiated by letter (e.g., 690A, 690B, etc.). Students should enroll in the lettered courses with specific topics in the title rather than in this root course. Repeatable for credit with School of Accountancy consent. Prerequisite(s): junior standing, advanced standing.

#### ACCT 781. Cooperative Education (1).

Provides the graduate student with a field placement which integrates theory with a planned and supervised professional experience. Programs must be formulated in consultation with appropriate graduate faculty. Repeatable for credit up to 3 hours. May not be used to fulfill degree requirements.

#### ACCT 801. Managerial Accounting (3).

Examines the use of accounting information to assist management in planning, analyzing, and implementing business decisions and activities. Focuses on strategic and operational performance analysis and evaluation. Not available for credit in the Master of Accountancy program. Prerequisite(s): graduate standing and MBA 800 or equivalent, or permission of the School of Accountancy.

#### ACCT 815. Financial Accounting and Reporting: Contemporary Issues (3).

Uses the case method and financial accounting databases to examine and analyze the application of generally accepted accounting principles to problems of measurement, presentation and disclosure in financial statements. Focuses on contemporary topics of interest in financial accounting and reporting. Prerequisite(s): graduate standing and ACCT 610 or equivalent, or permission of the School of Accountancy.

#### ACCT 825. Management Control Systems (3).

Studies accounting in the context of management control systems. Focuses on how accounting interacts with management in achieving an organization's strategic and operational objectives. Emphasizes contemporary challenges in accounting, related to broadening the types of information captured, measured, and reported. Prerequisite(s): graduate standing and ACCT 620 or 801 (or equivalent), or permission of the School of Accountancy.

#### ACCT 830. Taxation of Business Entities - Advanced Topics (3).

Analyzes various advanced topics in the taxation of business planning. Focuses on the use of various entity forms to achieve optimal tax and business objectives. Also considers the tax consequences of conducting business internationally. Prerequisite(s): graduate standing and ACCT 630 or equivalent, or permission of the School of Accountancy.

#### ACCT 831. Taxation of Estates and Trusts (3).

Studies the income taxation of trusts and estates, including the special cases of grantor and split-interest trusts. Examines the gift taxation of donors, the estate taxation of decedents, and the fundamentals of estate planning. Prerequisite(s): graduate standing and ACCT 430 or equivalent, or permission of the School of Accountancy.

#### ACCT 835. Tax Research and Selected Topics (3).

In-depth study of traditional and computerized tax research and planning techniques, ethical issues, tax practice issues, and introduces state, multistate and international taxation. Prerequisite(s): graduate standing and ACCT 630 (or equivalent), or permission of the School of Accountancy.

#### ACCT 840. Advanced Auditing (3).

Advanced study of auditing emphasizing auditing computerized systems, statistical sampling, and ethics. Prerequisite(s): graduate standing and ACCT 410 and 640 (or equivalent), or permission of the School of Accountancy.

#### ACCT 860. Advanced Accounting Information Systems (3).

Studies the concepts of information systems, their design and operation, and the relationship of these concepts to the economic information requirements, information flows, decision criteria, and control mechanisms in the business organization. Prerequisite(s): graduate standing and ACCT 560 (or equivalent), or permission of the School of Accountancy.

#### ACCT 890. Seminar in Special Topics (1-3).

Umbrella course created to explore a variety of subtopics differentiated by letter (e.g., 890A, 890B, etc.) Students should enroll in the lettered courses with specific topics in the titles rather than in this root course. Repeatable for credit with permission of the School of Accountancy.

#### ACCT 891. Directed Study in Accounting (1-3).

Prerequisite(s): School of Accountancy consent.

#### ACCT 892. Internship in Accounting (1-3).

Prerequisite(s): 3.000 GPA in accounting, graduate standing, School of Accountancy consent.

## AE - Aerospace Engineering

All graduate courses must be approved in advance of enrollment by a student's graduate advisor.

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

#### AE 502. Aerospace Propulsion I (3).

Surveys aerospace propulsion methods. Production of thrust and consumption of fuel. Rocket performance analysis; liquid chemical and solid propellant rocket engines. Jet engine cycle analysis; turbojet,

ramjet, turbofan and turboprop engines. Analyzes piston engines and propellers. Prerequisite(s): AE 227, 373, ME 398. Pre- or corequisite(s): AE 424.

**AE 512. Experimental Methods in Aerospace (3).**

Studies experimental methods and test planning, error analysis and propagation, model design, instrumentation and flow visualization. Uses electromechanical testing machines, subsonic and supersonic wind tunnels. Prerequisite(s): AE 333, 424. Pre- or corequisite(s): AE 524. Corequisite(s): AE 512L.

**AE 514. Flight Dynamics and Control (3).**

Static stability and control of conventional aircraft and implications in aircraft design, six degrees of freedom, time dependent equations of motion and their linearized solutions. Consideration of stability versus maneuverability and the dynamic modes of motion of the aircraft. Prerequisite(s): AE 415. Pre- or corequisite(s): AE 424.

**AE 524. Aerodynamics II (3).**

Continues the discussion of potential flow from AE 424. Introduces energy equation, fundamental concepts of high speed flow, normal and oblique shock waves, Prandtl-Meyer flow, nozzles and diffusers, linearized high speed potential flow, airfoils and wings in subsonic and supersonic flow, Navier-Stokes equation, boundary layer flow, momentum integral approximation and various laminar and turbulent flow solutions, introduction to convective heat transfer. Prerequisite(s): AE 424.

**AE 525. Flight Structures I (3).**

2 Classroom hours; 2 Lab hours. Introduces the theory of elasticity, advanced mechanics of materials, and stress analysis of flight vehicle components. Prerequisite(s): AE 333 (no grade lower than one that generates 2.000 or more credit points per credit hour will be accepted for this course). Pre- or corequisite(s): MATH 555. Corequisite(s): AE 525L.

**AE 527. Numerical Methods in Engineering (3).**

Error analysis. Includes polynomial approximations and power series, iterative solutions of equations, matrices and systems of linear equations, numerical differentiation and integration, approximate solution of differential equations by finite differences. Prerequisite(s): AE 227. Pre- or corequisite(s): MATH 555.

**AE 528. Aerospace Design I (4).**

2 Classroom hours; 4 Lab hours. Methodology of flight vehicle design; mission objectives, regulations and standards; use of hand and computer methods for configuration development and component sizing, ethics, and liability in design. Prerequisite(s): AE 502, 514, 525.

**AE 607. Flight Control Systems (3).**

Classical design methods for stability and control augmentation and guidance systems specifically for aerospace vehicles, including block diagrams, root locus and frequency response. Sensors used in aerospace systems. Flying qualities and performance specifications for closed loop systems. Includes a review of the aircraft and spacecraft dynamic model derivation. Prerequisite(s): AE 514.

**AE 625. Flight Structures II (3).**

2 Classroom hours; 3 Lab hours. Strength analysis and design of flight vehicle components. Introduces energy methods and variational principles. Applies finite element method, including commercial finite element software, to the analysis of flight vehicle structures. Prerequisite(s): AE 525. Corequisite(s): 625L.

**AE 628. Aerospace Design II (4).**

2 Classroom hours; 4 Lab hours. Preliminary design of flight vehicles, design iteration, sensitivity studies, optimization, economic considerations and introduction to project management. Prerequisite(s): AE 528.

**AE 660. Selected Topics (1-3).**

New or special topics presented on sufficient demand. Repeatable for credit when subject material warrants. Prerequisite(s): instructor's consent.

**AE 690. Independent Study (1-3).**

Arranged individual independent study in specialized areas of aerospace engineering under the supervision of a faculty member. Repeatable for credit. Prerequisite(s): consent of supervising faculty member.

**AE 702. Aerospace Propulsion II (3).**

In-depth study of rocket and jet propulsion. Turbojet and rocket engine components. Effect of operating variables on turbojet cycles and rocket performance. Prerequisite(s): AE 502 or instructor's consent.

**AE 703. Rotor Aerodynamics (3).**

Aerodynamics of rotors, including propellers, wind turbines and helicopters; momentum, blade element and potential flow analysis methods; helicopter dynamics, control and performance. Prerequisite(s): AE 424.

**AE 707. Modern Flight Control System Design I (3).**

Modern multi-loop design methods for stability and control augmentation and guidance systems, specifically for aerospace vehicles. State variable model. Optimal state feedback gains and Riccati's equation, tracking systems, sensors and actuator, discretization of continuous dynamic systems, optimal design for digital controls, and effect of nonlinearities and trim conditions on design considerations. Prerequisite(s): AE 514 or 714, and AE 607 or EE 684 or ME 659.

**AE 711. Intermediate Aerodynamics (3).**

Studies potential flow equations of motion, singularity solutions, principles of superposition, conformal mapping, thin airfoil theory, finite wing theory, three-dimensional singularities, swept wing theory, delta wing theory, and introduces panel methods. Prerequisite(s): AE 424 or equivalent.

**AE 712. Advanced Aerodynamics Laboratory (3).**

2 Classroom hours; 2 Lab hours. Advanced topics in wind tunnel testing, such as analysis and sensitivity, modeling techniques, flexure design and calibration, control surface loads and moments, laser velocimetry, hot film anemometry, dynamic signal processing, flow measurement probes, flow visualization using smoke tunnels and water tunnel. Prerequisite(s): AE 512.

**AE 714. Advanced Flight Dynamics I (3).**

Detailed derivation of the linear and nonlinear equations of motion for aircraft. Aerodynamic and thrust force and moment models. Steady state flight and dynamic stability and control of aircraft. Aircraft, FAR and MIL specs. Prerequisite(s): AE 514.

**AE 715. Intermediate Space Dynamics (3).**

Advanced topics in orbital mechanics-vector mechanics perspective of the two-body problem; fast transfers; interplanetary missions including gravity assist maneuver and intercept problem; atmospheric entry. Prerequisite(s): AE 415 or instructor's consent.

**AE 716. Compressible Fluid Flow (3).**

Analyzes compressible fluid flow for one- and two-dimensional cases, unsteady wave motion, velocity potential equation, method of characteristics, linearized velocity potential equation, aerodynamic coefficients, approximate pressure calculation for hypersonic flows, Newtonian pressure, and chemically reacting flows. Prerequisite(s): AE 524.

**AE 719. Introduction to Computational Fluid Dynamics (3).**

Classification of partial differential equations, numerical solution of parabolic, elliptic and hyperbolic differential equations, stability analysis, boundary conditions, scalar representation of the Navier-

Stokes equations, incompressible Navier-Stokes equations.

Prerequisite(s): AE 424 or ME 521.

**AE 721. Aircraft Icing (3).**

Topics include the icing environment, icing envelopes, ice accretion physics, fundamental equations for icing analysis, types of ice accretions, effects of ice accretions on aircraft aerodynamic performance, ice protection and detection systems, icing test facilities, introduces simulation tools for aircraft icing analysis, icing incidents and accidents, and aspects of aircraft icing certification. Corequisite(s): AE 424 or equivalent.

**AE 722. Finite Element Analysis of Structures I (3).**

Advanced treatment of the theoretical concepts and principles necessary for the application of the finite element method in the solution of differential equations in engineering. Prerequisite(s): AE 525 or AE 733.

**AE 731. Theory of Elasticity (3).**

Develops the equations of the theory of elasticity and uses them to determine stress and displacement fields in linear elastic isotropic bodies; uses Airy stress functions to obtain solutions. Prerequisite(s): AE 525 or AE 733.

**AE 733. Advanced Mechanics of Materials (3).**

Extension of AE 333. Includes transformation of stress and strain in three dimensions, torsion of members with noncircular cross sections, curved beams, beams with unsymmetrical cross sections, energy methods, stress concentrations, and theories of failure and fracture mechanics. Prerequisite(s): AE 333.

**AE 737. Mechanics of Damage Tolerance (3).**

Introduces fatigue analysis and mechanics of damage tolerance emphasizing stress analysis oriented fracture mechanics. Includes stress intensity, fracture toughness, residual strength, fatigue crack growth rate, fatigue crack propagation, and damage tolerance concepts. Prerequisite(s): AE 525 or AE 733.

**AE 742. Applied Jet Propulsion (3).**

In-depth overview of jet propulsion. Effect of operating variables on turbojet and modified engine cycles. Introduces real world issues and engine testing. Prerequisite: AE 502 or instructor's consent.

**AE 743. Applied Jet Propulsion Subsystems (3).**

In-depth study of jet engine components. Introduces engine component manufacturing, maintenance and repair issues. Prerequisite(s): AE 502 or instructor's consent.

**AE 753. Mechanics of Laminated Composites (3).**

Descriptive classification of advanced composite materials and their constituents; mechanics of lamina and laminates, testing for material properties, lamina and laminate failure criteria, laminate strain allowables, structural analysis (beams and axially loaded members), design guidelines, introduction to manufacturing methods, repair and nondestructive testing. Prerequisite(s): AE 525, or AE 733, or equivalent.

**AE 759. Neural Networks for System Modeling and Control (3).**

Introduces specific neural network architectures used for dynamic system modeling and intelligent control. Includes theory of feed-forward, recurrent, and Hopfield networks; applications in robotics, aircraft and vehicle guidance, chemical processes and optimal control. Prerequisite(s): AE 607 or ME 659 or EE 684 or instructor's consent.

**AE 760. Selected Topics (1-3).**

A special topics course. Special topics are listed in course schedule with a letter after the course number (i.e. ENGL 195A, ENGL 195B). Not all courses are offered each semester – see the course schedule for

availability. Students enroll in the special topic lettered courses, not this parent course. Prerequisite(s): instructor's consent.

**AE 760AA. Micromechanics and Multi-Scale Modeling (3).**

Many materials and structures consist of multiple phases. Micromechanics models can be used to homogenize a structure at some appropriate scale for more practical modeling. Course covers the classical mean-field homogenization models. Explores several state-of-the-art numerical techniques used in micromechanics modeling, such as the method of cells, variational methods and Fourier transforms in addition to finite element techniques for periodicity.

**AE 760AB. Structural Acoustics (3).**

Introduces the basic concepts of engineering acoustical analysis to study wave propagation, sound radiation from simple sources, absorption and transmission of acoustic wave through partitions, duct acoustics, aircraft noise sources and control techniques.

**AE 760AC. Nano-Satellite Engineering (3).**

Provides a fundamental understanding of the design of a nano-satellite and mission design catering to given mission requirements. Covers nano-satellite mission analysis, attitude control, electrical power systems, propulsion subsystem, thermal system, telemetry, data handling/processing and systems engineering tests. Includes hands-on experimentation using nano-satellite educational kits.

**AE 760AF. Experimental Vibration Analysis (3).**

Covers all basic aspects of experimental vibration analysis including modal analysis theory, digital signal processing and experimental modal model development. Includes hands-on vibration testing labs and a basic overview of finite element modeling of dynamic systems and model correlation. Prerequisite(s): AE 777, AE 333 or equivalent; MATH 511 or equivalent, and MATH 555 or equivalent.

**AE 760AG. Structural Dynamics and Acoustics (3).**

Studies the dynamic response of continuous structural systems subjected to external dynamic forcing functions. Introduces the basic concepts of engineering acoustical analysis to study sound propagation in a medium, acoustic radiation from simple sources, and absorption and transmission of acoustic waves through partitions. Prerequisite(s): AE 777, MATH 555 or equivalent.

**AE 760AI. Airframe Analysis and Design (3).**

Covers the analysis and design methods for semi-monocoque airframe structures under combined bending, twisting, transverse shear and pressurization loads. Emphasis is on details such as taper, cut-outs, joints, shear lag, buckling, etc. Prerequisite(s): AE 525 or AE 733 or equivalent.

**AE 760AL. Nonthesis Option Applied Learning Activity (0).**

Applied learning activity for the nonthesis/nonproject option student in the MS degree in aerospace engineering. Prerequisite(s): instructor's consent.

**AE 765A. Special Topics - Composite Manufacturing: Technology Safety Awareness I (0.5).**

Provides composite materials technologies basic knowledge, an overview of different forms of composites manufacturing, various factory workflows, and the associated regulatory guidance documents. For graduate students only. Repeatable for credit.

**AE 765B. Special Topics - Composite Manufacturing: Technology Safety Awareness II (0.5).**

Educates students on the issues related to raw material manufacturing, its transport, incoming quality control and storage of composite materials. The preparation of tooling, cutting of composite preforms, layup and bagging of composite parts, and curing are discussed in detail. The use of procurement specifications and process control

documents are emphasized. For graduate students only. Repeatable for credit. Prerequisite(s): AE 765A.

**AE 765C. Special Topics - Composite Manufacturing: Technology Safety Awareness III (0.5).**

Topics include technical aspects related to trimming and drilling of composites, defects in composites, adhesive bonding and assembly, nondestructive and destructive inspection. For graduate students only. Repeatable for credit. Prerequisite(s): AE 765B.

**AE 765D. Special Topics - Composite Manufacturing: Technology Safety Awareness IV (0.5).**

Topics include technical aspects related to painting and finishing composites, handling and storage, manufacturing defects and their root causes analyses, and scarf repair of composites. For graduate students only. Repeatable for credit. Prerequisite(s): AE 765C.

**AE 765E. Special Topics - Composite Manufacturing: Technology Safety Awareness V (0.5).**

Lab course providing students with hands-on experiences on prepreg cutting, manual layup and bagging of simple laminated composite parts, nondestructive inspection, and scarf repair. For graduate students only. Repeatable for credit. Prerequisite(s): AE 765D.

**AE 765F. Composite Structural Engineering Technology-0 (0.5).**

Provides students with background knowledge related to composite material applications, materials, processes, manufacturing, structural design, proof of structures, maintenance, aeroelastic issues, crashworthiness, fire safety and lightning protection. Course serves as a foundation course for the follow-on courses which elaborate on the aforementioned topics. Prerequisite(s): instructor's consent.

**AE 765G. Composite Structural Engineering Technology-1 (0.5).**

Provides a historical overview of composites usage in aircraft structures; discusses the key technical characteristics of composite structures; composites safety and certification initiatives by FAA; issues affecting cost of incorporating composites; role of standards organizations; some evolving composite technologies; evolution and objectives of integrated product teams. Pre- or corequisite(s): AE 765F.

**AE 765P. Composites Structural Integrity and Repair (0.75).**

Exposes students to various aspects of composite manufacturing, inspections, repair and testing. Includes fabrication of monolithic and sandwich panels, joining composites with adhesive bonding, inspecting composites with various nondestructive techniques, machining and hole drilling repair of composite structures (monolithic and honeycomb), instrumentation of composite test articles, and various aspects of mechanical testing of composite structures. Designed as a supplemental course for composite theory classes, thus lab time is maximized so that the students get hands-on experience. Prerequisite(s): instructor's consent.

**AE 765Q. Structural Integrity and Repair of Metallic Airframe Structures (0.75).**

Provides students with hands-on experience in the structural testing and evaluation of stiffened metallic panels. Students learn the hole drilling methods and use a CNC machine to drill holes and assemble a stiffened picture frame shear specimen. The hands-on experience includes nondestructive inspection of damaged stiffened panels using eddy current, mag. particles, dye penetrant, pulse thermography and X-ray methods. Students install strain gages and crack gages on picture frame shear test article which is tested on a servo hydraulic testing machine. Students are exposed to the basic principles of testing, analysis of test data, and failure analysis using SEM and optical microscope. Prerequisite(s): instructor's consent.

**AE 770BA. Badge: Composite Manufacturing Technology Safety Awareness I (0.5).**

Students are provided with composite materials technologies basic knowledge, an overview of different forms of composites manufacturing, various factory workflows, and the associated regulatory guidance documents. Graded Bg/NBg.

**AE 770BB. Badge: Composite Manufacturing Technology Safety Awareness II (0.5).**

Educates students on the issues related to raw material manufacturing, its transport, incoming quality control and storage of composite materials. The preparation of tooling, cutting of composite preforms, layup and bagging of composite parts, and curing are discussed in detail. The use of procurement specifications and process control documents are emphasized. Graded Bg/NBg. Prerequisite(s): AE 770BA.

**AE 770BC. Badge: Composite Manufacturing Technology Safety Awareness III (0.5).**

Topics include technical aspects related to trimming and drilling of composites, defects in composites, adhesive bonding and assembly, nondestructive and destructive inspection. Graded Bg/NBg. Prerequisite(s): AE 770BB.

**AE 770BD. Badge: Composite Manufacturing Technology Safety Awareness IV (0.5).**

Topics include technical aspects related to painting and finishing of composites, handling and storage, manufacturing defects and their root cause analysis, and scarf repair of composites. Graded Bg/NBg. Prerequisite(s): AE 770BC.

**AE 770BE. Badge: Composite Manufacturing Technology Safety Awareness V (0.5).**

Lab course provides students with hands-on experience on prepreg cutting, manual layup and bagging of simple laminated composite parts, nondestructive inspection and scarf repair. Graded Bg/NBg. Prerequisite(s): AE 770BD or instructor's consent.

**AE 770BG. Badge: Composite Structural Engineering Technology-0 (0.5).**

Provides students with background knowledge related to composite material applications, materials, processes, manufacturing, structural design, proof of structures, maintenance, aeroelastic issues, crashworthiness, fire safety and lightning protection. Course serves as a foundation course for the follow-on courses which elaborate on the aforementioned topics. Graded Bg/NBg. Prerequisite(s): instructor's consent.

**AE 770BI. Badge: Composite Structural Engineering Technology-1 (0.5).**

Historical overview of composites usage in aircraft structures; discusses the key technical characteristics of composite structures; composites safety and certification initiatives by FAA; issues affecting cost of incorporating composites; role of standards organizations; some evolving composite technologies; evolution and objectives of integrated product teams. Graded Bg/NBg. Pre- or corequisite(s): AE 770BG.

**AE 773. Intermediate Dynamics (3).**

Extension of AE 373. Studies the kinematics and kinetics of particles and rigid bodies for two- and three-dimensional motion. Includes an introduction to vibratory motion, dynamic stability of linear systems and Lagrange's equations. Prerequisite(s): AE 373.

**AE 777. Vibration Analysis (3).**

Studies free, forced, damped and undamped vibrations on multi-degree of freedom discrete mechanical systems. Introduces vibration analysis of continuous solids. Prerequisite(s): MATH 555, AE 333, 373.

**AE 801. Structural Dynamics (3).**

Studies the dynamic response of multiple degree of freedom systems and continuous systems subjected to external dynamic forcing functions. Classical, numerical and energy solutions, and introduces experimental techniques. Prerequisite(s): AE 525 or AE 733, and AE 777.

**AE 807. Modern Flight Control Systems Design II (3).**

Principles of optimal control, optimal spacecraft trajectories including high-thrust and low-thrust transfers, optimization of powered and unpowered atmospheric flights, numerical methods including both direct and indirect optimization schemes, trajectory optimization for multi-air and space vehicle systems. Prerequisite(s): AE 707 and at least one of AE 714 or AE 715.

**AE 812. Aerodynamics of Viscous Fluids (3).**

Viscous fluids flow theory and boundary layers. Prerequisite(s): AE 424 or ME 521.

**AE 813. Intro to Aeroelasticity (3).**

Studies phenomena involving interactions among aerodynamic, inertial and elastic forces. Explores the influence of these interactions on aircraft design. Includes such specific cases as divergence, control effectiveness, control reversal, flutter, buffeting, dynamic response to rapidly applied periodic forces, aeroelastic effects on load distribution, and static and dynamic stability. Prerequisite(s): AE 777 or MATH 757, or instructor's consent and programming proficiency.

**AE 814. Advanced Flight Dynamics II (3).**

Sensitivity analyses of flight parameters, control surface sizing, handling qualities, pilot in-the-loop analysis, trajectory optimization. Prerequisite(s): AE 714.

**AE 822. Finite Element Analysis of Structures II (3).**

Formulation of the finite element equations by variational methods; the use of isoparametric and higher order elements for analyzing two- and three-dimensional problems in solid mechanics; introduces solutions of nonlinear problems. Prerequisite(s): AE 722.

**AE 831. Continuum Mechanics (3).**

Introductory treatment of the fundamental, unifying concepts of the mechanics of continua with applications to classical solid and fluid mechanics. Prerequisite AE 731 or equivalent.

**AE 832. Theory of Plates And Shells (3).**

Analyzes the deformation of thin elastic plates, classical solutions for rectangular and circular plates, approximate solutions for plates of various shapes, introduces the analysis of thin shells. Prerequisite(s): MATH 757, AE 731.

**AE 833. Theory of Elastic Stability (3).**

Buckling of columns, frames, beams, plates and shells. Prerequisite(s): AE 731.

**AE 837. Advanced Mechanics of Damage Tolerance (3).**

Extension of AE 737. Includes the development of the mathematical foundations of linear elastic and plastic fracture mechanics, and computational fracture mechanics. Prerequisite(s): AE 731, 737, or equivalent.

**AE 853. Advanced Mechanics of Laminated Composites (3).**

Extension of AE 753. Includes anisotropic elasticity, micromechanics models for stiffness and strength, classical laminate and first order shear deformation theories, free-edge effects, failure theories, lateral deflections, analysis of notched laminates and sandwich structures. Prerequisite(s): AE 731, 753, MATH 758.

**AE 860. Selected Topics (1-3).**

Umbrella course created to explore a variety of subtopics differentiated by letter (e.g. 860A, 860B, etc.). Students should enroll in the lettered

courses with specific topics in the titles rather than in this root course.

Prerequisite(s): instructor's consent.

**AE 876. Thesis (1-6).**

Repeatable for credit.

**AE 878. MS Directed Project (1-3).**

Project conducted under the supervision of an academic advisor for the directed project option. Requires a written report and an oral presentation on the project. Repeatable for credit. Prerequisite(s): academic advisor's consent.

**AE 890. Independent Study (1-3).**

Arranged individual independent study in specialized areas of aerospace engineering under the supervision of a faculty member. Repeatable for credit. Prerequisite(s): consent of supervising faculty member.

**AE 911. Airfoil Design (3).**

Historical development of airfoils, underlying theories and experiments, modern airfoil design philosophies and techniques, theories used in modern airfoil computation methods, application of computer programs for practical airfoil design problems including high lift and control devices. Prerequisite(s): AE 711, MATH 757.

**AE 919. Advanced Computational Fluid Dynamics (3).**

Studies structured grid generation schemes, transformation of the governing equations of fluid motion, numerical algorithms for the solution of Euler equations, parabolized Navier-Stokes equations, and Navier-Stokes equations. Explores the fundamentals of unstructured grids and finite volume schemes. Prerequisite(s): AE 719.

**AE 936. Theory of Plasticity (3).**

Includes criteria of yielding, plastic stress-strain relationships; stress and deformation in thick-walled shells, rotating discs and cylinders, bending and torsion of prismatic bars for ideally plastic and strain-hardening materials. Includes two-dimension and axially symmetric problems of finite deformation and variational and extremum principles. Prerequisite(s): AE 731.

**AE 960. Advanced Selected Topics (1-3).**

Umbrella course created to explore a variety of subtopics differentiated by letter (e.g. 960A, 960B, etc.). Students should enroll in the lettered courses with specific topics in the titles rather than in this root course. Prerequisite(s): instructor's consent.

**AE 976. PhD Dissertation (1-16).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for credit. Prerequisite(s): admission to doctoral aspirant status.

**AE 990. Advanced Independent Studies (1-3).**

Prerequisite(s): instructor's consent.

## AGE - Aging Studies

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**AGE 501. Field Experience (1-6).**

Supervised field experience in an agency or organization planning or providing services to older people, individually designed to enhance each student's skills and knowledge of the aging service network. Repeatable for credit up to 6 credit hours. Prerequisite(s): 12 credit hours of aging studies credit and instructor's consent.

**AGE 512. Diversity and Aging (3).**

*General education social and behavioral sciences course*. Cross-listed as ETHS 512. Introduces students to issues in aging that are unique to minority older adults. Demonstrates differences in the aging experience

by race/ethnicity and addresses the differential patterns of health and illness in later life in relation to race/ethnicity, gender and culture. In addition, the student develops an appreciation for how race/ethnicity affects mental and social dimensions of life. Attention is given to the impact on the social, financial and health aspects of those who speak a language other than English. Course perspective is interdisciplinary, taking into account the physical, psychological, interpersonal and social influences which shape our understanding of the challenges older minorities face when relocating to the United States. *Course includes diversity content.*

**AGE 515. Women and Aging (3).**

Cross-listed as WOMS 580T. Introduces students to issues in aging that are unique to women, to women's diverse developmental patterns, and to research methods appropriate for studying aging women and their life experiences. Topics include physical change, role transitions and adaptation from a life span perspective. *Course includes diversity content.*

**AGE 516. Age, Work and Retirement (3).**

Examines the basic implications of population aging on work life and retirement opportunities, now and in the future. Explores factors that may place individuals at risk for economic insecurity as they grow older. Topics covered include the current situation in the United States and other countries, examines the economic status of older Americans, addresses retirement policies in the private sector, social security and health care issues.

**AGE 520. Family and Aging (3).**

Cross-listed as SOC 520. Analyzes the families and family systems of older people. Emphasizes demographic and historical changes, widowhood, caregiving and intergenerational relationships as these relate to the family life of older people. *Course includes diversity content.*

**AGE 525. Dying, Death and Bereavement (3).**

A broad overview of the psychological aspects of death and dying in our society. Topics include attitudes toward and preparation for death, the understanding of and care for terminally ill patients, funeral rituals, burial, mourning and grief practices; suicide and euthanasia. The class involves experiential learning activities such as personal preparation for death and field trips such as visiting a funeral home. These learning activities are designed to help the student be better equipped to help those who must make such preparations for themselves or loved ones.

**AGE 527. Introduction to Sexuality and Aging (3).**

Focuses on all aspects of sexuality and aging and the issues that arise with respect to sexual behavior as humans age. Examines human sexuality over the life course, focused on the experiences of those 65 and older and the impact of chronic disease, cognitive decline and physical disabilities on sexual attitudes and behaviors. Addresses key concerns regarding sexuality and aging, including misconceptions about sexuality and aging as well as the problems with sexuality that members of the aging population sometimes face. It also looks at solutions, treatments and techniques that can be applied to help address some of those problems. The course perspective is interdisciplinary, taking into account the physiological, psychological, interpersonal and social influences which shape our understanding of sexuality in the aged.

**AGE 529. Caregiving and Aging (3).**

Explores caregivers' gender roles, cost of caregiving, managing stress, respite care, finding resources, financial and legal matters, emerging caregiving trends, and long distance caregiving. Caregiving is often stressful to the caregiver. Attention is given to caring for the caregiver, informal versus formal caregiving, the importance of various services for the health of the caregivers themselves, working with professional caregivers, and emerging trends in caregiving.

**AGE 550. Selected Topics in Aging Studies (1-3).**

Study in a specialized area of aging studies with the focus upon preprofessional programs and current issues in the field of aging. Emphasizing knowledge and skills in applied areas of aging studies as they relate to an emerging area of research and application. Repeatable for credit up to 6 hours. Prerequisite(s): instructor's consent.

**AGE 559. Successful Aging: Theory, Research and Practice (3).**

Cross-listed as PSY 559, SCWK 559, and SOC 559. Reviews current interventions which promote successful aging. Theoretical bases of this work in biomedical and life span/developmental psychology are featured. Intended for students in the College of Health Professions, Liberal Arts and Sciences, and Engineering. *Course includes diversity content.* Prerequisite(s): AGE 100, or PSY 111, or SCWK 201, or SOC 111.

**AGE 559H. Successful Aging: Theory, Research and Practice Honors (3).**

Cross-listed as PSY 559, SCWK 559, and SOC 559. Reviews current interventions which promote successful aging. Theoretical bases of this work in biomedical and life span/developmental psychology are featured. Intended for students in the College of Health Professions, Liberal Arts and Sciences, and Engineering. *Course includes diversity content.* Prerequisite: AGE 100, or PSY 111, or SCWK 201, or SOC 111.

**AGE 560. The Aging Network (3).**

An overview of federal, state and local programs concerned with planning, managing or direct delivery of services to the older population.

**AGE 562. Human Resource Management in Long-Term Care (3).**

Builds a solid foundation in human resource management principles for professionals working in long-term care. Intended for students who need a skillset in HR management principles for an administrative role, or who will be managing HR professionals. Key human resources functions covered include HR's role as a strategic partner, employment law, recruitment, compensation and payroll, training and development, discipline and termination, and labor relations. Case studies, contemporary issues and discussions focus heavily on becoming an employer of choice in a long-term care environment.

**AGE 564. Assisted Living Management and Operations (3).**

Designed to broaden the understanding of operating and managing a long-term care community — specifically assisted living communities. Students gain an understanding of human capital demands, cross-functional departmental dependences, financial and budgetary requirements, as well as the relationship between operational excellence and quality of life for the resident.

**AGE 622. Public Health and Aging (3).**

Explores the study of aging and the range of health issues that older persons, their families, their providers and society will face in the next decade. Presents an overview on aging from different perspectives: demography, biology, epidemiology of disease, physical and mental health disorders, functional capacity and disability, social aspects of aging, and ethical issues in the care of older individuals.

**AGE 624. Community Programming (3).**

Reviews the importance of social engagement in the improvement and maintenance of well being in older adults. Students learn the importance of planning, implementing and evaluating innovative programming and events for people aging in place and aging in community.

**AGE 626. Senior Living Hospitality (3).**

Explores best practices for service excellence at senior living communities. Students gain in-depth understanding of the current senior

living landscape and have the opportunity to utilize the principles of environmental psychology to plan senior living environments that support health and wellness through informed design. Topics covered include marketing, culture change and generational trends surrounding expectations of senior living.

**AGE 660. Administrator-in-Training Long-Term Care Practicum (1-3).**

Academic long-term care administrator training program. Develops a professional competency and personal code of ethics for the field of long-term care administration. Gives students the practical experience required by the state of Kansas in order to sit for the state and national nursing home administrator licensure examination. The required text is the study guide for the national exam. It is the student's responsibility to work through the study materials and seek guidance from their preceptor regarding questions over the material. A total of 480 clock-hours are required by the state of Kansas and must be completed in a licensed long-term care nursing home community under the guidance of an approved preceptor. Repeatable for a total of 3 credit hours. Prerequisite(s): instructor's consent.

**AGE 702. Research Methods (3).**

Cross-listed as PADM 702. Provides foundational and advanced knowledge and skills to prepare students to develop research studies and locate, appraise and apply age-related research to answer clinical questions. Emphasizes principles of evidence-based practice, research design and methodologies, framing research questions, and interpretation of basic and advanced statistics necessary to critically evaluate, interpret and apply age-related research to industry challenges. Fulfills the university's professional and scholarly integrity training requirement addressing research misconduct, publication practices and responsible authorship, conflict of interest and commitment, research ethics, data management, sharing and ownership.

**AGE 710. Skilled Nursing Home Management and Operations (3).**

Analyzes nursing and operational management in the U.S. as a response to chronic illness, disabilities and rehabilitation services within skilled nursing communities. Addresses system and organizational aspects that affect outcomes including regulatory requirements, reimbursement and quality management as key performance indicators. Examines financial and quality related implications that facilitate bridging interdisciplinary gaps and result in the provision of the ultimate care experience with compliant and accurate reimbursement methods and individually tailored models of care.

**AGE 717. Health Communications and Aging (3).**

Multidisciplinary, empirically-based consideration of emotions, behaviors, beliefs and attitudes related to aging and the process of communicating with older adults. Topics include: approaches to communication and aging, current evidence about communication and the aging population, interpersonal and intergenerational communication, mass communication and aging, health and health care interactions (patient-physician communication, etc.), older adults and technology, and cultural change. Students develop applied skills and critical thinking. Applications to public health are explored throughout the course.

**AGE 718. Family Care Management (3).**

The course builds a solid foundation in care coordination for older adults and navigation of family dynamics for professionals working in health care. This class is intended for students who need access to these skills in an administrative role, or who are in contact with older adults and their loved ones as they transition to and from various health care settings. Key family care management functions covered include patient education, medication management and adherence support, risk stratification, population management, coordination of care transitions,

and care planning. Case studies and contemporary issues focus heavily on becoming a provider of choice in a senior living environment.

**AGE 720. Independent Readings (1-3).**

Supervised study of special topics and problems relating to older adults. Repeatable for credit up to 6 credit hours. Prerequisite(s): program consent.

**AGE 765. The Medicare System (3).**

Explores the many intricacies of the Medicare and Medicaid programs. Emphasizes the application of course material to the development of the student's understanding of how these two programs affect the use of medical services among covered populations. Includes lecture, group and individual examination of the literature, and analysis of case studies.

**AGE 780. Physical Dimensions of Aging (3).**

Cross-listed as HPS 780. Develops an understanding of the complex physiological changes that accompany advancing age and the effects of physical activity on these factors. Also develops an appreciation for how functional consequences affect mental and social dimensions of life. Attention is given to sensory, motor, cognitive and psychological changes. Emphasizes factors associated with the preparation, implementation and evaluation of research projects involving older adult populations.

**AGE 781. Cooperative Education (3-6).**

Provides practical field experience, under academic supervision, that is suitable for graduate credit and complements and enhances the student's academic program. Repeatable for credit up to 6 credit hours. These 3 to 6 credit hours may meet degree requirements (if approved by the academic advisor) in place of AGE 810. AGE 781 is graded Cr/NCr, while AGE 810 is letter graded. Prerequisite(s): 12 credit hours of aging studies and instructor's consent.

**AGE 798. Perspectives on an Aging Society (3).**

Introduces the advanced study of the process of aging from a multidisciplinary point of view. Provides an analysis of the physical, mental and social age-related changes, as well as implications of population aging trends for individuals and society. Not open to students with an undergraduate major or minor in aging studies. Prerequisite(s): admission to graduate school.

**AGE 801. Field Research Aging Studies (1-3).**

Examines the methods of participant observation and interview as approaches to understanding aging and the aged. Students gain practical experience in these methods through individual fieldwork projects. Prerequisite(s): AGE 798, 12 credit hours of aging studies credit, or instructor's consent.

**AGE 804. Social Policy and Aging (3).**

Analyzes and evaluates policies and programs related to aging and old age. Emphasizes the importance of social values and historical context for understanding current policies, programs and practices. Prerequisite(s): AGE 798, 12 credit hours of aging studies, or instructor's consent.

**AGE 810. Aging Studies Practicum (3-6).**

Integrates academic aging studies and practical experience through supervised placement of students in an agency or organization engaging in planning, administering or providing direct services to older people. Practicum requires 160 contact hours for each 3 credit hours. A practicum internship paper is also required. Repeatable for a total of 6 credit hours. AGE 810 is a letter-graded course. Students may substitute the S/U course AGE 781, Cooperative Education, or approved Credit for Prior Learning professional portfolio for AGE 810. Prerequisite(s): 12 credit hours of aging studies and instructor's consent prior to registration.

**AGE 813. Advanced Sociological Perspectives of Aging (3).**  
Cross-listed as SOC 813. Overview of the significant sociological perspectives, social issues and social science research pertaining to the phenomenon of aging in society. Examines the major theories of social aging, analyzes the changing demographic trends and the political economy issues facing aging societies; describes how the broader societal context affects the nature of family relationships, community involvement, and the experiences of retirement and widowhood among older adults. Examines the current issues in health and social service delivery for care of older adults. Examines a substantive field which includes major social policy as well as personal significance in contemporary life. *Course includes diversity content.*

**AGE 814. Advanced Psychological Perspectives of Aging (3).**  
Provides a comprehensive exploration of the psychology of aging. Students examine the issues surrounding the adult aging process. Topics include personality and intellectual change, mental health of older adults, and the psychological issues of extending human life. Teaches aspects of successful aging, normal aging and age-related illness such as dementia, Alzheimer's disease, cancer and heart conditions. Emphasizes the strengths of older adults and prevention of psychological problems of older adults.

**AGE 818. Advanced Biological Perspectives of Aging (3).**  
Designed to provide students with the most up-to-date information on the current understanding of the aging process. Students develop an understanding of the biology of aging with a system-by-system description of aging phenomena. Students are expected to develop an understanding of the complexities of the aging process from various perspectives.

**AGE 850. Selected Topics Aging Studies (1-6).**  
Advanced study in a specialized area of aging studies focusing on professional programs and current issues in the field of aging. Emphasizes knowledge and skills in applied areas of aging studies as they relate to an emerging area of research and application. Repeatable for credit up to 6 credit hours.

**AGE 895. Thesis Research (1-3).**  
Individual guidance in the development of a specific research problem. Potential thesis topics should be formulated by the student and discussed with their thesis advisor. Repeatable for a total of 3 credit hours. Prerequisite(s): completion of, or current enrollment in, all academic coursework for the master's degree.

**AGE 898. Applied Research Paper (1-3).**  
Original research project under a faculty member's direction. Project requires a written report and defense of that report before a faculty committee. Must be an individual effort, not a group project. Intended to be a major project or capstone activity completed at the end of a student's program of study. Repeatable for credit. Prerequisite(s): graduate-level research methods class.

**AGE 899. Thesis (1-3).**  
Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for a total of 4 credit hours.

## ANTH - Anthropology

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**ANTH 502. Introduction to Archaeological Laboratory Techniques (1-3).**  
Introduces the laboratory processing of archaeology materials. Direct experience in all phases of preparing excavated materials for analysis,

including cleaning, restoring, preserving, numbering and cataloging ceramic and lithic artifacts and other remains. Repeatable for a total of 3 credit hours. Prerequisite(s): ANTH 305.

**ANTH 511. The Indians of North America (3).**  
*General education social and behavioral sciences course.* Surveys tribal societies and native confederations north of Mexico from the protohistoric through the historic period. *Course includes diversity content.* Prerequisite(s): ANTH 102.

**ANTH 519. Applied Anthropology (3).**  
The application of anthropological knowledge in the solution of social problems in industry, public health and public administration. Prerequisite(s): ANTH 102.

**ANTH 522. Art and Culture (3).**  
*General education social and behavioral sciences course.* Surveys the visual and performing arts of non-Western peoples with special attention to their relationships in the cultural setting. *Course includes diversity content.* Prerequisite(s): ANTH 102.

**ANTH 528. Medical Anthropology (3).**  
*General education social and behavioral sciences course.* Studies the health and behaviors of various human societies, especially in, but not limited to, those outside the Western scientific tradition. Covers attitudes toward the etiology of disease, the techniques of healing, the use of curative drugs and other agents, the roles of healers and therapists, and the attitudes of the community toward the ill. A library or field research project is required. Prerequisite(s): 3 credit hours of nursing, or 3 credit hours of anthropology, or instructor's consent.

**ANTH 540. The Indians of the United States: Conquest and Survival (3).**  
Anthropological inquiry into four centuries of cultural contact, conflict, resistance and renaissance. Prerequisite(s): ANTH 102 or instructor's consent.

**ANTH 542. Women in Other Cultures (3).**  
Cross-listed as WOMS 542 and ANTH 397R. Deals with the place of women in primitive and other non-Western societies, in various aspects of culture: political, economic, social, religious, domestic, intellectual, psychological and aesthetic. Compares and contrasts societies in order to see how different kinds of roles for women are related to different kinds of societies. *Course includes diversity content.*

**ANTH 555. Paleoanthropology and Human Paleontology (3).**  
*General education social and behavioral sciences course.* Detailed examination of human evolutionary history as evidenced by fossil remains and a survey of various interpretive explanations of the fossil record. Prerequisite(s): ANTH 101 or BIOL 210 or equivalent.

**ANTH 557. Human Osteology (3).**  
Deals with human skeletal and dental materials, with applications to both physical anthropology and archaeology. Lecture and extensive laboratory sessions; includes bone and tooth identifications, measurement and analysis, and skeletal preservation and reconstruction. Individual projects are undertaken. Prerequisite(s): ANTH 101 or equivalent.

**ANTH 562. Introduction to GIS (3).**  
Skills and techniques course that introduces elementary concepts and tools of geographic information systems and the particular tools available in the program ArcGIS Desktop. Application of GIS tools and concepts to data analysis and interpretation, to behavioral pattern interpretation, and management decisions in using the data available from the WSU City Archeologist program and from the Sedgwick County GIS department are emphasized.

**ANTH 597. Topics In Anthropology (3).**

Detailed study of topics in anthropology. Content varies with interest of instructor. Consult Schedule of Courses for current topic. Repeatable for credit with a change of content.

**ANTH 597AF. The Preservation of Artifacts in Relation to Exhibition (3).**

Explores preservation techniques for artifacts on exhibit and the preparation of artifacts to go on exhibit. Techniques include general conservation, lighting and temperature. Students work independently on a project and work with artifacts to prepare for exhibit.

**ANTH 597AO. Archaeology of Colonialism (3).**

Explores the archaeology of colonial situations, from the Roman colonialism of Gaul to the Spanish conquest of California. Explores how new cultural identities form in these situations and how systems of power and resistance have shaped the course of history. Reading/writing heavy course, culminating in a research project of the students' interest. Prerequisite(s): ANTH 103 or instructor's consent.

**ANTH 597AP. Current Research in Archaeology and Ethnohistory (3).**

Gives students hands-on experience in archaeological and ethnohistorical research by involving them in the Etzanoa Archaeological Project. The project is focused on the archaeological remains of the large town called Etzanoa that was visited by a Spanish expedition in 1601. The project involves not only archaeological excavation (done in the summertime) but also laboratory and library research. Students are involved in creating a complete digital library of documents regarding Wichita archaeology and history (requested by the tribe's cultural affairs officer) with annotations. Project also includes assembling and analyzing historic photographs that can be used in future museum displays. The archaeological work includes processing specimens from the site and doing the background research necessary to interpret them. Some of the results of the research will be posted on Wikipedia.

**ANTH 597AQ. Intro to the Human Skeleton (1).**

Introduces the general anatomy of the human skeleton. Prepares students with little or no background in this area of study for more comprehensive coursework in human osteology.

**ANTH 597AR. Anthropology of Food and Nutrition (3).**

Explores the relationship between *Homo sapiens* and the food currently eaten — holistically pulling from biology, nutrition, history, archaeology, food science, and cultural studies. Students participate in a hands-on, applied learning event — cooking using ancient techniques. Graduate study encompasses enhanced reading, presentation and independent study.

**ANTH 597AT. Kansas Archaeology (3).**

Cross-listed as ANTH 397AT. Surveys the first 15,000 years of human behavior in Kansas. Section is designed for upper-division undergraduate students or graduate students.

**ANTH 597AU. Advanced Human Osteology (3).**

Detailed study of topics in anthropology. Content varies with interest of instructor. Consult Schedule of Courses for current topic. *Course includes diversity content.* Repeatable for credit with a change of content. Prerequisite(s): ANTH 101 and ANTH 557.

**ANTH 597AV. Research Design and Proposal Writing (3).**

Introduces students to foundational skills in anthropology: research design and proposal writing. Students choose a research question or appropriate project and develop a grant proposal to an appropriate funding agency. In so doing, they practice writing and mathematical skills appropriate to their subdiscipline.

**ANTH 597AW. Human Osteometry and Variation (3).**

Covers methods and techniques pertaining to the measuring (quantification) of the bones of the human skeleton. Students learn how to measure and record data, and how to apply the data in analysis of archaeological, historic and forensic skeletal settings. *Course includes diversity content.*

**ANTH 600. Forensic Anthropology (3).**

Cross-listed as CJ 600. Course focus is on recovery, analysis and identification of human and non-human remains in the area of criminal investigation. Includes lecture and case study presentations, hands-on lab analysis and investigation of human skeletal material, forensic profile estimation, and investigation of trauma and assessment of manner of death; forensic anthropology crime scene survey, mapping and documentation. Covers procedures of collection, recording, stabilization and documentation and anthropological identification. Prerequisite(s): ANTH 101 and ANTH 557 or equivalent is required for all Anthropology, Forensic Science and other non-criminal justice students. All criminal justice students must complete ANTH 101 and CJ 191 prior to taking ANTH 600, and ANTH 557 is highly recommended.

**ANTH 602. Archaeological Laboratory Analysis (1-3).**

Students analyze archaeological materials, including ceramic, lithic, faunal and vegetal remains according to accepted methods. Students learn to apply standard methods of identification and modes of interpretation to the materials to produce an acceptable archaeological report. Prerequisite(s): ANTH 502 and instructor's consent.

**ANTH 606. Museum Methods (3).**

Introduces museum techniques relating to the acquisition of collections and related procedures, such as accessioning, cataloging, documentation, presentation and storage. Emphasizes current trends in museological philosophy concerning purpose, function and relevance of museums, as well as career opportunities. Prerequisite(s): instructor's consent.

**ANTH 607. Museum Exhibition (3).**

Contemporary philosophy of exhibition design and the application of recent concepts to the planning and installation of an exhibit. Prerequisite(s): ANTH 606 or instructor's consent.

**ANTH 609. Biological Anthropology Laboratory Analysis (1-3).**

Analyzes biological anthropology materials including human and nonhuman skeletal material of both forensic contemporary or prehistoric origin according to standardized methods for recording and collecting data in biological anthropology. Learn methods of identification, analysis and interpretation and prepare a standard technical report. Repeatable for credit up to 6 credit hours. Prerequisite(s): ANTH 101, 106, 356 or 557.

**ANTH 612. Indians of the Great Plains (3).**

Investigates the cultural dynamics of the Great Plains area from the protohistoric period to the present. *Course includes diversity content.* Prerequisite(s): 6 credit hours of anthropology and departmental consent.

**ANTH 613. Archaeology of the Great Plains (3).**

*General education social and behavioral sciences course.* The archaeology of the Great Plains area from earliest evidence to the historic period. Prerequisite(s): one introductory course in anthropology or departmental consent.

**ANTH 647. Theories of Culture (3).**

Surveys the main theoretical movements in cultural anthropology, including both historical and contemporary schools of thought. Prerequisite(s): 6 credit hours of anthropology.

**ANTH 651. Language and Culture (3).**

Cross-listed as LING 651 and MCLL 651. An introduction to the major themes in the interactions of language and society, and language and culture, including ethnography of communication, linguistic relativity and determinism; types of language contact, the linguistic repertoire, and cross-cultural discourse analysis. Content may vary with instructor. Prerequisite(s): 3 hours of linguistics or MCLL 351 or 6 hours of anthropology.

**ANTH 662. Topics in Spatial Analysis (3).**

Explores ways, means, techniques and methods to analyze geospatial data. Geographic analysis with GIS can identify patterns, relationships and trends that lead to better decision making. The class begins with six of the most common geographic analysis tasks: mapping where things are, mapping the most and least, mapping density, finding a boundary and what is inside the boundary, finding what is nearby, and mapping what has changed. The second half of the class covers analytical topics that range from identifying patterns and clusters, to analyzing geographic relationships. Knowledge of the Microsoft Windows operating system and Microsoft Office software suite is a must. Prerequisite(s): ANTH 562 with a C or better or permission of the instructor.

**ANTH 680. CRM Archaeology (3).**

Reviews the major federal and selected state laws and regulations affecting the practice of archaeology and anthropology in the area of Cultural Resources Management and historic preservation in the United States. Discussion focuses on the public concern with historic and cultural resources and archaeology, balancing research and planning needs, and interaction between clients and agencies.

**ANTH 690. Field Methods in Anthropology (1-8).**

Instructs the student in archaeological and ethnological field methods through actual participation in a field research program. The project depends upon the specific summer session and varies from year to year. A maximum of 6 credit hours can be counted toward either the BA or MA degree in anthropology. Prerequisite(s): instructor's consent.

**ANTH 736. Advanced Studies in Archaeology and Ethnohistory (3).**

Special area and theory problems in a historical approach to culture. Prerequisite(s): graduate standing and 6 credit hours of anthropology.

**ANTH 746. Advanced Studies in Cultural Anthropology (3).**

In-depth coverage of selected topics in cultural anthropology, including social structure, economic and political organization, religion, personality, arts and knowledge systems, and current research methods. Prerequisite(s): graduate standing and 6 credit hours of anthropology, including ANTH 647 or equivalent as determined by the graduate coordinator.

**ANTH 750. Workshop (1-4).**

Short-term courses focusing on anthropological problems. Prerequisite(s): instructor's consent.

**ANTH 750N. Advanced Museum Independent Study (3).**

Arranged course. Advanced research in the application of museum studies. The student works independently in an area pertaining to museum studies including research, preservation, exhibition and education.

**ANTH 750P. Museum Internship (3).**

Arranged course. For students earning their museum studies certificate. Students intern in an area museum.

**ANTH 756. Advanced Studies in Biological Anthropology (1-3).**

In-depth coverage of selected topics in biological anthropology, including the history of evolutionary thought, human variation, growth and development, population dynamics, paleoanthropology and

primatology. Focuses on current issues, method and theory in biological anthropology. Prerequisite(s): graduate standing and 6 credit hours of anthropology (must include ANTH 101 or instructor's consent).

**ANTH 770. Advanced Readings (1-3).**

Provides opportunities for additional student research and reading on concepts and topics covered in the core graduate courses, ANTH 736, Advanced Studies in Archeology and Ethnohistory; ANTH 746, Advanced Studies in Cultural Anthropology; and ANTH 756, Advanced Studies in Biological Anthropology. Repeatable for credit up to 6 credit hours. Prerequisite(s): full graduate standing, completion of one core course (ANTH 736, 746 or 756), departmental consent.

**ANTH 781. Cooperative Education (1-4).**

Provides practical experience that complements the student's academic program. Requires consultation with, and approval by, an appropriate faculty sponsor. May not be used to satisfy degree requirements. Repeatable for credit. Prerequisite(s): graduate status.

**ANTH 798. Introduction to Research (3).**

Research methodology in anthropology, including bibliography, research design and the philosophy of research. Prerequisite(s): full graduate standing and completion of at least one of the following core courses: ANTH 736, 746, or 756.

**ANTH 801. Seminar in Archaeology (3).**

Comprehensive analysis of archaeological data emphasizing theoretical problems of interpretation and reconstruction. Repeatable for credit up to 6 credit hours.

**ANTH 802. Methods In Anthropology (2-3).**

Develops abilities in the conception and investigation of anthropological problems, and interview and observation techniques, as well as more specialized methods such as photography, mapping and tape recording. Repeatable for credit up to 6 credit hours. Prerequisite(s): departmental consent.

**ANTH 820. Seminar in Biological Anthropology (3).**

Analyzes and discusses ancient fossil, prehistoric, historic and recent/modern biological variation in an anthropological perspective. Can include advanced studies of human variation and skeletal biology, demography and population genetics in anthropology, advanced studies in paleoanthropology and issues in the debate over micro and macro levels of evolution, and quantitative applications to the study of human variation in anthropological contexts. Repeatable for credit up to 6 credit hours. Prerequisite(s): departmental consent.

**ANTH 837. Seminar in Cultural Anthropology (3).**

Intensive study of advanced theoretical questions in cultural anthropology. Repeatable for credit up to 6 credit hours. Prerequisite(s): graduate standing and 5 credit hours of completed graduate coursework in anthropology including ANTH 746.

**ANTH 847. Colloquium in Anthropology (1).**

Seminar-style experience in recent research in all of the subfields of anthropology. Allows those students preparing their first papers for presentation at professional conferences to present them before a critical but friendly audience. Repeatable once for additional credit. Prerequisite(s): graduate standing in anthropology.

**ANTH 870. Independent Readings (1-3).**

Repeatable for credit up to 6 credit hours. Prerequisite(s): departmental consent.

**ANTH 871. Internship in Anthropology (1-2).**

Students following applied or multidisciplinary tracks, such as museology, international business education, or health professions receive professional work experience in their field through an internship at a designated workplace approved by departmental committee.

Course requires a written report. Prerequisite(s): full graduate standing, completion of ANTH 736, 746, 756, and committee consent.

**ANTH 872. Internship in Anthropology (1-2).**

Students following applied or multidisciplinary tracks, such as museology, international business education, or health professions receive professional work experience in their field through an internship at a designated workplace approved by departmental committee. Course requires a written report. Prerequisite(s): full graduate standing, completion of ANTH 736, 746, 756, and committee consent.

**ANTH 873. Advanced Projects in Anthropology (1-2).**

In consultation with their major advisor and committee, students design a project (e.g., a museum exhibit, a written plan for an international business venture, a lesson plan for an anthropology unit in schools) that applies anthropological method and theory to the specific needs of an institution, group or population. Requires a tangible end product (e.g., paper, thesaurus and/or visual production or exhibit). Prerequisite(s): full graduate standing, completion of ANTH 736, 746, 756, and committee consent.

**ANTH 874. Advanced Projects in Anthropology (1-2).**

In consultation with their major advisor and committee, students design a project (e.g., a museum exhibit, a written plan for an international business venture, a lesson plan for an anthropology unit in schools) that applies anthropological method and theory to the specific needs of an institution, group or population. Requires a tangible end product (e.g., paper, thesaurus and/or visual production or exhibit). Prerequisite(s): full graduate standing, completion of ANTH 736, 746, 756, and committee consent.

**ANTH 875. Thesis (1-2).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for credit. Prerequisite(s): full graduate standing; completion of ANTH 736, 746 and 756; and committee consent.

**ANTH 876. Thesis (1-2).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for credit. Prerequisite(s): full graduate standing; completion of ANTH 736, 746 and 756; and committee consent.

## ARTE - Art Education

**Although applications are not being accepted for the graduate program in art education, the following courses are available.**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**ARTE 511. Cross-Cultural Aesthetic Inquiry (3).**

Explores aesthetics through critical discourses informing the social and cultural worldviews that frame visual arts practices. Emphasizes how cultural diversity within U.S. global interconnections influences educational theory and practice in art education. Related curriculum development, museum practices and artistic traditions are explored. Students write and discuss critical observations and interpretations in response to artworks, and create aesthetic-based curriculum materials or activities. Topics include feminist art, craft and design, multicultural art, traditional/indigenous art, religious and spiritual art, social practice and social justice, commerce in art, exhibition spaces and museums, art criticism and theories, and censorship and controversies in art. Emphasizes K-12 classroom applications. Prerequisite(s): ARTF 202 or instructor's consent.

**ARTE 515. Developing Visual Materials for Art Education (3).**

Production laboratory emphasizing the integration and selection of appropriate visual media for art instruction. Prerequisite(s): ARTE 310 or equivalent.

**ARTE 517. Teaching Internship Seminar (1).**

Analyzes problems encountered in the art classroom during the second semester of the internship year. For undergraduate credit only. Prerequisite(s): acceptance in Core III internship, grade of B- or above in ARTE 310, 410, 414 and CI 427; minimum GPA of 2.500 overall. Corequisite(s): ARTE 459, 462. Student must receive a B- or better in the three student teaching courses: ARTE 459, 462, 517.

**ARTE 550. Art Workshop (1-3).**

Repeatable for credit. Area covered is determined at the time the course is offered.

**ARTE 550B. Book Arts and Mixed Media (1-3).**

Students challenge their personal creativity and enrich their artistic skills through weekly workshop explorations that include a variety of media and processes linked to cross-cultural, contemporary concepts in art. Each week is a new focus, required weekly attendance varies based on credit hour enrollment. Connections for future personal art exploration or classroom applications are addressed.

**ARTE 702. Metal Processes for Jewelry Construction (3).**

Emphasizes fabrication techniques, design analysis and function of jewelry designed and produced by students and acknowledged craftsmen. Repeatable once for credit. Prerequisite(s): ARTE 302 or instructor's consent.

**ARTE 710. Creative Behavior and Visual Thinking (3).**

Identification and application of theories for creative and critical thinking. Emphasizes strategies for problem solving and visual thinking and procedures to implement those strategies. Student identifies an area for individual investigation. Repeatable once for credit.

**ARTE 711. Seminar In Art Education (1-3).**

Supervised study and research of contemporary issues in art education. Repeatable for credit with departmental consent.

**ARTE 713. Fiber and Fabric Processes (1-3).**

Fiber processes using traditional and experimental techniques in woven forms and other structural techniques using natural and man-made fibers. Repeatable once for credit. Prerequisite(s): instructor's consent.

**ARTE 714. Aesthetics for Classroom (3).**

Focuses on applying the issues and theories of aesthetics to the K-12 classroom. Students participate in discussions and demonstrations of these theories through critical and reflective writing as well as curricular planning. Students consider aesthetic development and construct lessons to integrate strategies involving aesthetic concepts into their teaching.

## ARTG - Graphic Design

**Although there is no graduate degree in graphic design, the following courses are available.**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**ARTG 530. Seminar in Graphic Design (1-3).**

Supervised study and research. Requires weekly consultation and reports. Repeatable for credit. Prerequisite(s): instructor's consent.

**ARTG 530AA. Working with Design (3).**

Studies the elements and principles of graphic design. Course is offered for nonmajors.

**ARTG 530F. Seminar in Graphic Design: Graphic Design Studio Practice (3).**

Supervised study and research. Requires weekly consultation and reports. Repeatable for credit. Prerequisite(s): instructor's consent.

**ARTG 530S. Seminar in Graphic Design: Graphic Design Studio (3).**

Supervised study and research. Requires weekly consultation and reports. Repeatable for credit. Prerequisite(s): instructor's consent.

**ARTH - Art History**

Although there is no graduate degree in art history, the following courses are available.

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**ARTH 520. Seminar In Art History (1-3).**

Systematic study in selected areas of art history. Course content varies but individual areas are not repeatable for credit.

**ARTH 532. Independent Study in Art History (1-3).**

Work in a specialized area of the study of art history. Directed readings and projects. Prerequisite(s): instructor's consent.

**ARTH 533. Seminar: Topics in Modern Art (3).**

Selected readings and problems in art of the modern era. Course content varies but individual areas are not repeatable for credit.

**ARTH 533AB. Islamic Art (3).**

Explores the relationship between the Islamic faith and various art forms. Muslim societies have produced artworks of extraordinary vitality and diversity across three continents over the course of 1500 years. Course examines this art thematically. Topics include: introduction to Islam, mosque architecture, calligraphy, Islamic ornament, ceramics, contemporary video/performance art, and more. Students gain a greater familiarity with the vibrant Islamic community in Wichita through guest speakers, field trips, and cultural exchanges.

**ARTH 533AF. Realism/Activism/Prints (3).**

Working closely with the director of the Ulrich Museum of Art and the museum's notable collection of works on paper, students explore regional and national printmakers of the past century who engaged in social activism. Students have the opportunity to view firsthand the works discussed in the class, and to research and write critically about those works for an exhibition at the Ulrich Museum of Art the following semester.

**ARTH 533AG. Contemporary Sculpture (3).**

This class will address selected works of sculpture from the modern and contemporary period. Emphasis will be placed on major artists and movements, such as cubism and minimalism. This course will help students identify stylistic differences between these movements and place them in their larger socio-historical contexts, allowing students to understand why different artists developed different styles or subject matters at different times.

**ARTH 533AI. History of Photography (3).**

Explores the major conceptual, ideological and cultural issues that have impacted the history of photography from the 19th century to the present. Emphasizes the sociopolitical forces, technological developments and aesthetic innovations that have determined the trends of photographic theory and production.

**ARTH 540D. Concepts in Creative Industries: Funding and Promotion (3).**

Focuses on applied learning through partnerships with on- and off-campus arts and cultural organizations. Working closely with their

partner organizations, students learn the basics of funding and resource management for those organizations, such as grant writing, discovering alternative revenue streams, and collaborating with existing and prospective donors or commercial sponsors. Students also learn about promotional strategies by participating in the venues' publicity and marketing efforts and by helping to create promotional materials, to plan events, to find advertising opportunities, and more. For undergraduate credit only. Prerequisite(s): ARTH 125A-Z and at least one 300-level ARTH course; or instructor's consent.

**ARTH 546. Modernism II (3).**

Explores a changing array of social, cultural, political and medium-specific issues that have impacted the development of modern art and design and the notion of modernism as an important theoretical term. Themes, topics and artistic/design-based references in this class change and respond to current debates and dialogues informing art and design practice. Requires in-depth research and analysis in oral and written communication. Prerequisite(s): ARTH 346, graduate standing, or instructor's consent.

**ARTH 547. Themes in Contem Art/Design II (3).**

Explores the historical foundations of contemporary art and design, as well as the various social cultural, political and medium-specific issues that influence creative citizenship, contemporary practices, theories of postmodernism and globalization, existing and emerging exhibition strategies, and changing audiences and environments. Themes, topics and artistic/design-based references of this class change and respond to current debates and dialogues. Note: This course offers an undergraduate section under the number ARTH 347. Prerequisite(s): ARTH 347, graduate standing, or instructor's consent.

**ARTH 550B. Contemporary Art & Technology (3).**

Examines the role of mechanical, electronic and digital technologies in the creative practices of the late 20th and 21st centuries with emphasis on Europe and North America. Beginning with kinetic and moving to cybernetically inspired art, this course explores early uses of computer technology, including early experiments in synthetic video and interactivity. Critical investigations of new media art such as computer games, bio and sound art, and art for mobile devices, as well as examinations of new media arts beyond Western traditions are integral parts of the course. Prerequisite(s): ARTH 125A-Z and at least one 300-level ARTH course; or instructor's consent.

**ARTH 587. Theories of Art History and Culture II (3).**

Explores a range of theoretical models from various cultures and periods that have been used to better understand, contextualize, interpret and analyze visual culture and a range of art and design practices. Structuralism, poststructuralism, modernism, postmodernism, cultural theory (including postcolonial theory, queer theory and feminism), material theory, aesthetics, and theories of connoisseurship are discussed as contributing influences to successful creative practice and useful tools for its subsequent interpretation. Note: This course offers an undergraduate section under the number of ARTH 387. Prerequisite(s): ARTH 387, graduate standing, or instructor's consent.

**ARTH 732. Independent Study in Art History (1-3).**

Work in specialized area of the study of art history. Directed readings and projects for graduate students in all disciplines. Prerequisite(s): instructor's consent.

**ARTS - Studio Art**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**ARTS 517. Community and Social Practice Senior Project (1).**

BFA in art - studio art with community and social practice concentration capstone course. Emphasizes individual development of research and/or artistic content. For undergraduate credit only. Prerequisite(s): ARTS 481N, instructor's consent. Pre- or corequisite(s): ARTS 599.

**ARTS 525. Advanced Electronic Media (3).**

Focuses on further development of thematic content, creative problem solving, and producing original artwork that makes a personal artistic statement. Explores the field through presentations and/or research papers. Repeatable for credit. Prerequisite(s): ARTS 322, instructor's consent.

**ARTS 527. Electronic Media Senior Project (1).**

BFA in art-studio art with electronic media concentration capstone course. Emphasizes individual development of research and/or artistic content. Limited to undergraduate students. Prerequisite(s): ARTS 525, instructor's consent. Corequisite(s): ARTS 599.

**ARTS 535. Advanced Photo Media (3).**

Focuses on further development of thematic content, creative problem solving, and producing original artwork that makes a personal artistic statement. Explores the field through presentations and/or research papers. Repeatable for credit. Prerequisite(s): ARTS 335, instructor's consent.

**ARTS 537. Photo Media Senior Project (1).**

BFA in art-studio art with photo media concentration capstone course. Emphasizes individual development of thematic content. Limited to undergraduate students. Prerequisite(s): ARTS 535, instructor's consent. Corequisite(s): ARTS 599.

**ARTS 545. Advanced Drawing Studio (3).**

Independently defined projects and directions in drawing and drawing-related media aimed toward developing a drawing practice, process or portfolio. Research, readings and/or lectures investigating historical, contemporary and applied approaches to drawing in both fine art and popular applications. Repeatable for credit. Prerequisite(s): ARTS 341 or 345, or instructor's consent.

**ARTS 547. Drawing Senior Project (1).**

BFA in art-studio art with applied drawing concentration capstone course; emphasizes individual development of thematic content. For undergraduate credit only. Prerequisite(s): ARTS 545, instructor's consent. Corequisite(s): ARTS 599.

**ARTS 549. Independent Study-Drawing (1-3).**

Professional emphasis on technical or aesthetic research in the drawing area. Available only for the advanced drawing student with instructor's consent. Statement of intent must be submitted for faculty approval before registration. Prerequisite(s): ARTS 340, 345, instructor's consent.

**ARTS 550. Art Workshop (1-3).**

Intensive study of topics related to studio arts. Differing topics are denoted by a letter following the course number (i.e., ARTS 550C, ARTS 550P, etc.).

**ARTS 550AA. Photography Abroad: Paris (3).**

Class travels to Paris, France, to make photographs, study the history of the area, and see amazing ancient and contemporary art over spring break. Cost varies depending on prices at the time of travel, but includes all travel and lodging. Contact instructor for details. Prerequisite(s): instructor's consent.

**ARTS 550AB. Photography Abroad: Italy (3).**

Class travels to Northern Italy to make photographs, study the history of the area, and see amazing ancient and contemporary art over spring break. Fly from Wichita to Rome, drive a rental van from Rome to

Florence, stop in several small hill-towns in northern Italy and finish in Venice. Cost varies depending on prices at the time of travel, but includes all travel and lodging. Contact instructor for details. Prerequisite(s): instructor's consent.

**ARTS 550AC. Art and Archaeology in the Streets of Mexico City (3).**

Three-week course investigating Mesoamerican imagery and traditions, Mexican history and politics, and the importance of the public sphere on Mexican muralism and contemporary art and life in Mexico City; classes meet in June, then students travel for one week to Mexico City (June 16-23). Upon return, students independently pursue a research or creative project within the remaining weeks of the semester. Experiences planned during travel include Casa Azul (Frida Kahlo's house), the murals of Chapultepec Castle, the murals of the Palacio de Bellas Artes, the Diego Rivera murals in the National Palace, and the archeological sites of the Templo Mayor and Teotihuacan.

**ARTS 550AD. JUMP!STAR Sculpture & Ritual (3).**

JUMP!STAR is an interdisciplinary experiment in culture-making and recalibrating our relationship with time. This initiative involves artists, musicians and scientists working with communities in Kansas to invent future cultural traditions that would accompany the eventual transitioning of our North Star, which will occur in about a thousand years. In this course, students focus on the sculptural components of this future celebration. Students learn the traditional Japanese techniques for making very large-scale paper sculptures that are used in Nebuta festivals in the Aomori region of Japan. They work with artist George Ferrandi on the fabrication of one of a series of twelve JUMP! STAR sculptures, each representing one of the earth's eventual pole stars.

**ARTS 550AF. Photography Abroad: Cuba (3).**

During this course, students and the instructor plan, prepare for and undertake a trip to Cuba. During the first part of the semester, students study aspects of the history, culture, politics and current events of Cuba. Students travel over spring break, on a trip ranging from approximately 10 to 14 days. While in the country, students carry out their own photographic/artistic projects, meet other artists and curators, visit exhibitions, and see culturally significant locations. Students edit and print images made during the trip after their return. Cost varies depending on prices at the time of travel, but includes all travel and lodging. Contact instructor for details. *Course includes diversity content.* Prerequisite(s): instructor's consent.

**ARTS 553. Independent Study: Painting (1-3).**

Professional emphasis on technical or aesthetic research in the painting area. Available only for the advanced painting student with instructor's consent. Statement of intent must be submitted for faculty approval before registration. Prerequisite(s): departmental consent.

**ARTS 554. Advanced Painting (3).**

Focuses on further development of thematic content, creative problem solving and producing original artwork that makes a personal artistic statement. Explores the field through presentations and/or research papers. Repeatable for credit. Prerequisite(s): 6 credit hours from ARTS 354, 356, 358; instructor's consent.

**ARTS 557. Painting Senior Project (1).**

BFA in art-studio art with painting concentration capstone course; emphasizes individual development of thematic content. Limited to undergraduate students. Prerequisite(s): ARTS 554, instructor's consent. Corequisite(s): ARTS 599.

**ARTS 560. Advanced Printmaking (3).**

Focuses on further development of thematic content, creative problem solving, and producing original artwork that makes a personal artistic statement. Explores the field through presentations and/or research

papers. Repeatable for credit. Prerequisite(s): ARTS 369, instructor's consent.

**ARTS 565. Independent Study: Printmaking (1-3).**

Professional emphasis on technical and aesthetic research in the printmaking area. Only for the advanced printmaking student with instructor's consent. Statement of intent must be submitted for faculty approval before registration. Prerequisite(s): departmental consent.

**ARTS 567. Printmaking Senior Project (1).**

BFA in art-studio art with printmaking concentration capstone course. Emphasizes individual development of thematic content. Limited to undergraduate students. Prerequisite(s): ARTS 560, instructor's consent. Corequisite(s): ARTS 599.

**ARTS 570. Advanced Ceramics (3).**

Focus on further development of thematic content, creative problem solving, and producing original artwork that makes a personal artistic statement. Exploration of the field through presentations and/or research papers. Repeatable for credit. Prerequisite(s): ARTS 373, instructor's consent.

**ARTS 577. Ceramics Senior Project (1).**

BFA in art-studio art with ceramics concentration capstone course; emphasizes individual development of thematic content. Limited to undergraduate students. Prerequisite(s): ARTS 570, instructor's consent. Corequisite(s): ARTS 599.

**ARTS 578. Independent Study in Ceramics (1-3).**

A professional emphasis on technical or aesthetic research in the ceramics field. Available only for the advanced ceramics student with instructor's consent. Statement of intent must be submitted for faculty approval before registration. Prerequisite(s): departmental consent.

**ARTS 580. Advanced Sculpture (3).**

Focuses on further development of thematic content, creative problem solving, and producing original artwork that makes a personal artistic statement. Explores the field through presentations and/or research papers. Repeatable for credit. Prerequisite(s): ARTS 380 and instructor's consent.

**ARTS 585. Independent Study in Sculpture (1-3).**

Professional emphasis on technical or aesthetic research in the sculpture area. Available only for the advanced sculpture student with instructor's consent. Statement of intent must be submitted for faculty approval before registration. Prerequisite(s): ARTS 282, 283, departmental consent.

**ARTS 587. Sculpture Senior Project (1).**

BFA in art-studio art with sculpture concentration capstone course; emphasizes individual development of thematic content. Limited to undergraduate students. Prerequisite(s): ARTS 580, instructor's consent. Corequisite(s): ARTS 599.

**ARTS 590. SlowBurn Topics - First Semester (3).**

Long-term projects consisting of experiential coursework whose planning and implementation extend across two successive semesters, with the first semester course typically devoted to research and planning. Course travel fee may apply. For undergraduate credit only. Requires enrollment in consecutive semesters of a single sequence of two SlowBurn Topics courses. Repeatable for credit. Prerequisite(s): ARTF 202; senior standing; or instructor's consent.

**ARTS 590G. SlowBurn Topics - First Semester: Artist As Administrator (3).**

First semester of two semester sequence in which students design a professional project suiting their interests. Students may work with partners, groups, the entire class, or individually, and will execute and evaluate the project in the second semester. Project may include an organizational connection if desired. Nature and form of the project are

determined through student interests, readings, discussions, professional speakers, and consultations with instructor.

**ARTS 591. SlowBurn Topics - Second Semester (3).**

Course travel fee may apply. Long-term projects consisting of experiential coursework whose planning and implementation extend across two successive semesters, with the second semester course typically devoted to the experience researched and planned in the first semester SlowBurn Topics course. Requires enrollment in consecutive semesters of a single sequence of two SlowBurn Topics courses. Repeatable for credit. Prerequisite(s): ARTF 202; approved ARTS 590 in sequence; senior standing in an ARTS major or instructor's consent.

**ARTS 591G. SlowBurn Topics - Second Semester: Artist As Administrator (3).**

Second semester of two semester sequence in which students design a professional project suiting their interests. Students execute and evaluate the project designed in the first semester. Project may include an organizational connection if desired. Prerequisite(s): successful completion of ARTS 590G during the Fall 2017 semester.

**ARTS 599. Senior Exhibition (3).**

Creation of artwork and research for public group exhibition as part of programmatic capstone requirement for BFA in studio art. For undergraduate students only. Prerequisite(s): either ARTS 481N, 525, 535, 545, 554, 560, 570, or 580. Corequisite(s): either ARTS 527, 537, 547, 557, 567, 577, or 587.

**ARTS 790. Graduate Teaching Seminar (1).**

Discussion seminar for graduate students already teaching or intending to teach. Meets six to eight times per semester. Class format is discussion. Students participate in discussions, read articles and essays, create teaching philosophy, create academic portfolio.

**ARTS 800. Seminar in Art Topics (2-3).**

Explores areas of common interest in the arts. Supervised study, research and discussion. Repeatable for credit.

**ARTS 800J. SlowBurn Topics: Designing and Creating a Sculpture Path in Matfield Green, Kansas (3).**

Students assist in all phases of designing and installing a sculpture path in the art colony of Matfield Green, Kansas. First semester: designing signs, brochures, creating an online presence and applying for grant support for the project. Second semester: preparing the path, installing signage and assisting professional artists in installing their work. Travel to and from Matfield Green (one hour drive from Wichita) is required; funding for travel and overnight accommodations is provided.

**ARTS 800L. Photography Abroad (3).**

Class travels overseas to make photographs, study the history of the area, and see amazing ancient and contemporary art. Cost varies depending on prices at the time of travel, but includes all travel and lodging. Contact instructor for details. Prerequisite(s): instructor's consent.

**ARTS 800M. Art and Archaeology in the Streets of Mexico City (3).**

Three-week course investigating Mesoamerican imagery and traditions, Mexican history and politics, and the importance of the public sphere on Mexican muralism and contemporary art and life in Mexico City; classes meet in June, then students travel for one week to Mexico City (June 16-23). Upon return, students independently pursue a research or creative project within the remaining weeks of the semester. Experiences planned during travel include Casa Azul (Frida Kahlo's house), the murals of Chapultepec Castle, the murals of the Palacio de Bellas Artes, the Diego Rivera murals in the National Palace, and the archeological sites of the Templo Mayor and Teotihuacan.

**ARTS 800N. JUMP!STAR Sculpture & Ritual (3).**

JUMP!STAR is an interdisciplinary experiment in culture-making and recalibrating our relationship with time. This initiative involves artists, musicians and scientists working with communities in Kansas to invent future cultural traditions that would accompany the eventual transitioning of our North Star, which will occur in about a thousand years. In this course, students focus on the sculptural components of this future celebration. Students learn the traditional Japanese techniques for making very large-scale paper sculptures that are used in Nebuta festivals in the Aomori region of Japan. They work with artist George Ferrandi on the fabrication of one of a series of twelve JUMP! STAR sculptures, each representing one of the earth's eventual pole stars.

**ARTS 830. Special Problems in Photo Media (1-5).**

Introduces and develops advanced research methods in photography and related media through broad-based material/conceptual experimentation, personal expression, formal resolution, and theoretical grounding. Techniques include the spectrum of photographic processes, including traditional digital or analog photography, video, appropriation of imagery, experimental/antiquated techniques, etc. As students progress through the program, expectations shift to more deeply engaged and narrowly focused studio research in preparation for, and in support of, the terminal project. Scholarly research that augments the artistic practice is expected in the form of readings of pertinent literature, discussions in small-group and seminar formats, field studies, etc. Course meets program requirements for studies in the graduate photo media major. Majors in other areas may take this course to fulfill requirements for the minor area. Repeatable for credit. May be taken for 1-5 credit hours, based on the scope and nature of specific research interests, as determined by the area head, in consultation with the student and the student's primary advisor.

**ARTS 838. Terminal Project - Photo Media (1-5).**

As the first part of the culmination of the 60-hour MFA degree, this course emphasizes original studio research in areas related to photo media in preparation of the terminal project exhibition. While the terminal project is offered in lieu of thesis, it is expected that MFA candidates engage in scholarly research and writing in support of their studio practice. Repeatable for credit. Prerequisite(s): successful completion of the terminal project review and instructor's consent.

**ARTS 839. Terminal Project - Photo Media (1-5).**

As the culmination of the 60-hour MFA degree, this course focuses on the production of the terminal project exhibition. The terminal project is offered in lieu of thesis, but is accompanied by a written statement outlining the conceptual premise, historical and contemporary contexts, and/or technical aspects of the work. Repeatable for credit. Prerequisite(s): ARTS 838.

**ARTS 845. Special Problems in Drawing (1-3).**

Advanced drawing in various media emphasizing independent work and the development of personal expression. Repeatable for credit.

**ARTS 850. Special Problems in Painting (1-5).**

Professional and experimental painting emphasizing the development of maturity, ideas, independent thinking and personal expression. Media include oil, watercolor and synthetic media. Repeatable for credit with the consent of the drawing/painting faculty.

**ARTS 858. Terminal MFA Project - Painting (2-5).**

Terminal project for the MFA - painting degree. Projects are formulated by the student under the supervision of a faculty member. Repeatable for credit.

**ARTS 859. Terminal MFA Project - Painting (1-5).**

Terminal project for the MFA - painting degree. Projects are formulated by the student under the supervision of a faculty member. Repeatable for credit.

**ARTS 860. Special Problems in Printmaking - Intaglio (1-5).**

Advanced printmaking on an individual basis. Gives encouragement to investigation, combined with a craftsman-like approach. Techniques include all intaglio, relief, combined methods, black and white, and color. Repeatable for credit.

**ARTS 868. Terminal Project - Printmaking (1-5).**

Terminal project for the MFA - printmaking degree. Projects are formulated by the student under the supervision of a faculty member. Repeatable for credit.

**ARTS 869. Terminal Project - Printmaking (3-5).**

Terminal project for the MFA - printmaking degree. Projects are formulated by the student under the supervision of a faculty member. Repeatable for credit.

**ARTS 870. Special Problems in Ceramics (1-5).**

Research in advanced problems in ceramics. Repeatable for credit.

**ARTS 875. Advanced Research of Ceramic Materials (3).**

Lectures and advanced research covering clays, glazes and refractory materials. Reading assignments concerning physical and chemical characteristics of pottery materials. Requires notebook and outside lab work.

**ARTS 878. Terminal Project - Ceramics (2-5).**

Terminal project for the MFA - ceramics degree. Projects are formulated by the student under the supervision of a faculty member. Repeatable for credit.

**ARTS 879. Terminal Project - Ceramics (1-5).**

Terminal project for the MFA - ceramics degree. Projects are formulated by the student under the supervision of a faculty member. Repeatable for credit.

**ARTS 880. Special Problems in Sculpture (1-5).**

Advanced sculpture emphasizing experimentation and high-quality work on an individual basis. Stresses special projects in casting architectural sculpture, mixed media, or new materials and techniques. Repeatable for credit.

**ARTS 888. Terminal Project - Sculpture (1-5).**

Terminal project for the MFA - sculpture degree. Projects are formulated by the student under the supervision of a faculty member. Repeatable for credit.

**ARTS 889. Terminal Project - Sculpture (1-5).**

Terminal project for the MFA - sculpture degree. Projects are formulated by the student under the supervision of a faculty member. Repeatable for credit.

**ARTS 895. Professional Practices in Studio Art (2).**

Research into, and practical application of, professional practices, business skills and career planning specific to the discipline of studio art. Provides a foundation of practical information to assist the graduate studio art major in building a successful professional career. Fulfills the university's professional and scholarly integrity training requirement covering research misconduct, publication practices and responsible authorship, conflict of interest and commitment, ethical issues in data acquisition, management, sharing and ownership when taken in conjunction with appropriate terminal project course. Not repeatable for credit.

## BIOL - Biology

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

### BIOL 502. Vascular Plants (4).

2 Classroom hours; 4 Lab hours. Introduces the structure, reproduction, and evolution of the major groups of living and extinct vascular plants. Includes an introduction to flowering plant systematics. Students earning graduate credit perform a primary literature survey on a topic selected in consultation with the instructor and deliver a 30-minute oral presentation to the class. Prerequisite(s): BIOL 204 (no longer offered) or BIOL 211, CHEM 212.

### BIOL 503. Field Botany (4).

Introduces the field identification of common flowering plants using technical scientific keys, distributional patterns and general principles of taxonomy. In addition to lecture and laboratory activities, numerous field trips develop botanical skills and reinforce principles covered in lecture. Prerequisite(s): BIOL 211, CHEM 212, or instructor's permit.

### BIOL 510. Ecosystem Management & Restoration (3).

Examines the design, implementation, and evaluation of land management plans and restoration projects. Restoration case studies covering a wide-array of ecological systems (e.g. grassland, forest, wetland, aquatic and marine) are used to examine the strengths and weakness of different approaches in these contexts with particular attention to key ecological principles and socio-economic realities. Students produce a written management plan for a site in south-central Kansas. *Course includes diversity content*. BIOL 418 is recommended. Prerequisite(s): BIOL 211 or instructor's permission.

### BIOL 524. Vertebrate Zoology (3).

Evolution, distribution, natural history and special characters of vertebrate animals. Students earning graduate credit produce a term paper based on the technical literature on a topic chosen in consultation with instructor. Prerequisite(s): BIOL 204 (no longer offered) or BIOL 211, CHEM 212; BIOL 527 is also recommended.

### BIOL 527. Comparative Anatomy (5).

3 Classroom hours; 4 Lab hours. Intensive study of representative chordates emphasizing vertebrate anatomy. Students earning graduate credit complete additional assignments chosen in consultation with the instructor, such as a term paper based on technical literature, dissection of additional animals, etc. Prerequisite(s): BIOL 211 and CHEM 212. Corequisite(s): BIOL 527L.

### BIOL 528. Parasitology (4).

2 Classroom hours; 4 Lab hours. Studies the parasites of man and other vertebrate hosts. Students earning graduate credit produce a term paper based on the technical literature on a topic chosen in consultation with the instructor. Prerequisite(s): BIOL 204 (no longer offered) or BIOL 211, CHEM 212.

### BIOL 530. Applied and Environmental Microbiology (3).

A characterization of the roles of microbes in natural and man-made environments. Discussions of microbial ecology and communities, interrelationships with higher organisms, biogeochemical cycling, biotechnology and bioremediation. Students earning graduate credit produce an additional research paper based on primary literature on a topic chosen in consultation with the instructor. Prerequisite(s): BIOL 204 (no longer offered) or BIOL 211, CHEM 212.

### BIOL 532. Entomology (4).

2 Classroom hours; 4 Lab hours. Introduces the morphology, physiology, life cycles, behavior, ecology and economic significance of insects. Students earning graduate credit produce a term paper based on the technical literature on a topic chosen in consultation with the

instructor or develop proficiency in a specific taxon by performing an individual systematics project. Prerequisite(s): BIOL 204 (no longer offered) or BIOL 211, CHEM 212.

### BIOL 534. Human Physiology (3).

Organ systems approach to human physiology. Emphasizes nervous and endocrine control systems and the coordination of body functions. Students earning graduate credit submit a term paper based upon library research on a topic in human physiology chosen in consultation with the instructor. Prerequisite(s): BIOL 204 (no longer offered) or BIOL 211, CHEM 531, or instructor's consent.

### BIOL 535. Human Physiology Lab (2).

4 Lab hours. Empirical approach to human physiology. Students seeking graduate credit submit an additional laboratory report relating the results of a laboratory experiment to those found in the current technical literature. Pre- or corequisite(s): BIOL 534.

### BIOL 540. Developmental Biology (4).

2 Classroom hours; 4 Lab hours. Developmental processes in animals emphasizing vertebrates. Centered on the cell interactions controlling differentiation and morphogenesis. Students earning graduate credit complete additional assignments chosen in consultation with the instructor. Prerequisite(s): BIOL 204 (no longer offered) or BIOL 211, CHEM 212. BIOL 420 recommended. Corequisite(s): BIOL 540L.

### BIOL 560. Plant Ecology (2).

2 Classroom hours. Examines the relationship of plants to their environment at the organismal, population, community and ecosystem levels. For graduate credit, a student must prepare and present a 30-minute lecture over one of the topics covered in this course. Prerequisite(s): BIOL 418 and CHEM 212 or instructor's consent.

### BIOL 561. Plant Ecology Lab (2).

Laboratory component of BIOL 560. Field trips are an integral part of the course. Emphasizes an experimental approach to plant ecology. For graduate credit, a student must present the results of the library/laboratory project orally, as well as in writing. Pre- or corequisite(s): BIOL 560.

### BIOL 570. Conservation Biology (3).

Examines the application of fundamental concepts in ecology, evolutionary biology and genetics to the preservation of biological diversity at the levels of genotypes, species and ecosystems. Topics covered include (1) how biologists quantify biological diversity, (2) threats to biological diversity, (3) tools used to evaluate the level of threat to individual species and to design species management plans, and (4) concepts and considerations for preserve design. Decisions related to biodiversity conservation often have social and economic consequences, students explore these complexities through case studies. Skills developed in this course include critical reading of primary scientific literature, scientific writing and oral presentation. Prerequisite(s): BIOL 418.

### BIOL 575. Field Ecology (3).

9 Lab hours. Techniques for analysis of systems consisting of living organisms and their environments. Field trips are required. Students earning graduate credit perform an individual project on comparative community structure and report the results as a technical paper. Prerequisite(s): BIOL 418 or instructor's consent.

### BIOL 590. Immunobiology (3).

The nature of antigens and antibodies and their interactions. Includes cellular and humoral aspects of immunologic phenomena. Students earning graduate credit prepare a term paper based on the technical literature on a topic chosen in consultation with the instructor. Prerequisite(s): BIOL 204 (no longer offered) or 211, CHEM 531.

**BIOL 610. Topics in Botany (1-5).**

Selected offerings in botany. Consult the Schedule of Courses for current offering(s). Students wishing to enroll in courses not listed in the current schedule must complete a Directed Independent Study Abstract form and obtain approval prior to enrollment. Students earning graduate credit produce a term paper based on the technical literature on a topic chosen in consultation with the instructor. Repeatable for credit. Prerequisite(s): BIOL 204 (no longer offered) or BIOL 211, CHEM 212 and instructor's consent.

**BIOL 610A. Cell and Molecular Biology Lab (1).**

Acquire current techniques and experimental approaches for studying cells. Prerequisite(s): departmental approval.

**BIOL 610M. Topics in Genetics Lab (1).**

Students acquire knowledge in current genetics techniques, and know how to apply that knowledge to analyze genetic data, which helps to improve their trouble shooting and problem solving skills. Prerequisite(s): departmental approval.

**BIOL 610N. Plant Ecology Lecture and Lab (4).**

Focuses on identifying and explaining key ecological patterns found in plant populations and communities.

**BIOL 626. Reproductive Biology (3).**

Covers the basic organization and function of vertebrate reproductive systems. Includes current concepts and contemporary research from the molecular to the population level. Students earning graduate credit prepare a term paper based on the technical literature on a topic chosen in consultation with the instructor. BIOL 526 is strongly recommended. Prerequisite(s): BIOL 420.

**BIOL 640. Topics in Zoology (1-4).**

Selected offerings in zoology. Consult the Schedule of Courses for the current offering(s). Students wishing to enroll in courses not listed in the current schedule must complete a Directed Independent Study Abstract form and obtain approval prior to enrollment. Students earning graduate credit produce a term paper based on the technical literature on a topic chosen in consultation with the instructor. Repeatable for credit. Prerequisite(s): BIOL 204 (no longer offered) or BIOL 211, CHEM 212 and instructor's consent.

**BIOL 640AA. Ecology Lab (1).**

Laboratory explores the principles underlying the interrelationships of living organisms and their environments from the biosphere to the population level of organization. Prerequisite(s): departmental approval.

**BIOL 640AB. Human Anatomy (3).**

Gives students an understanding of the anatomy of the human body at the 600 level. Emphasis is on the detailed structural anatomy and classification of each of the human body's organ systems. Students are challenged to begin thinking clinically so as to prepare for a future in the health professions. Includes weekly lectures and laboratories that the student is expected to attend. Corequisite(s): BIOL 640AL.

**BIOL 640AC. Endocrinology (3).**

Regulation of physiological processes in vertebrates by chemical messengers; hormones and growth factors. Prerequisite(s): BIOL 211, CHEM 212 and instructor's consent.

**BIOL 640AL. Human Anatomy Lab (2).**

The gross and microscopic anatomy of each human body system is examined in lab through the use of models, diagrams, lab activities and dissections. Dissections include fetal pig full dissection and organ dissections of the following sheep organs: brain, eyeball, heart and kidney. Corequisite(s): BIOL 640AB.

**BIOL 640CA. Herpetology (3).**

Evolution, ecology and natural history of amphibians and reptiles with lab that covers general anatomy and the identification and natural

history of all native species of amphibians and reptiles in Kansas.

Optional field trips explore regional areas of herpetological interest and include activities such as exploring frog choruses, road cruising and general fieldwork related to sampling theory, sampling techniques, and identification of amphibians and reptiles. Prerequisite(s): BIOL 211 and CHEM 212.

**BIOL 640CB. Field Vertebrate Zoology (4).**

Covers the general evolution, ecology and natural history of Kansas vertebrates. Combines basic natural history of a wide variety of Kansas vertebrate families with general fieldwork, sampling theory, sampling techniques and approaches to taxa-specific identification. Prerequisite(s): BIOL 211 and CHEM 212, or instructor's consent.

**BIOL 640CL. Herpetology Lab (1).**

Covers general anatomy and the identification and natural history of all native species of amphibians and reptiles in Kansas. Optional field trips explore regional areas of herpetological interest and include activities such as exploring frog choruses, road cruising and general fieldwork related to sampling theory, sampling techniques, and identification of amphibians and reptiles. Prerequisite(s): BIOL 211 and CHEM 212. Corequisite(s): BIOL 640CA.

**BIOL 640G. Topics in Neurobiology (3).**

The course covers fundamental neuroanatomy, cellular and molecular neuroscience, development, sensory systems, motor systems, and regulatory systems.

**BIOL 640OL. ST: General Biology I - Lab (1).**

Biology is a laboratory science and the laboratory portion of General Biology I introduces students to experimental methods and scientific communication. Prerequisite(s): departmental approval.

**BIOL 640P. Evolution (3).**

Students in this course will learn basic aspects of evolutionary pattern and process with a focus on changes within populations. Topics include: 1) an overview of natural selection and its effects; 2) the micro evolutionary process in natural populations (drift, selection, mutation, etc.); 3) quantitative genetics; 3) testing hypotheses of adaptation; 4) the evolution of genomes; and 5) lineage divergence (speciation).

**BIOL 640QL. ST: General Biology II - Lab (1).**

The laboratory includes a survey of organismal diversity including prokaryotes, protists, fungi, plants and animals. Prerequisite(s): departmental approval.

**BIOL 660. Topics in Microbiology (1-4).**

Selected offerings in botany. Consult the Schedule of Courses for current offering(s). Students wishing to enroll in courses not listed in the current schedule must complete a Directed Independent Study Abstract form and obtain approval prior to enrollment. Students earning graduate credit produce a term paper based on the technical literature on a topic chosen in consultation with the instructor. Repeatable for credit. Prerequisite(s): BIOL 330 and instructor's consent.

**BIOL 660J. General Microbiology Lab (2).**

Hands on general microbiology laboratory skills will be performed, including; microscopy, staining, aseptic and culturing techniques, isolation and identification of bacterial species, and other standard techniques used in microbiology. Prerequisite(s): departmental approval.

**BIOL 660K. Astrobiology (3).**

Examines primary literature in astrobiology. Students present and discuss reviews of these reports from both a scientific and editorial standpoint. Successful students acquire in-depth knowledge of concepts and methods in astrobiology. Focuses on microbial aspects of astrobiology, including planetary protection, life in extreme environments, habitability and life detection. Topics may vary and

extend to long-duration peopled missions, bioregenerative life support systems and microgravity research. Prerequisite(s): BIOL 210, BIOL 211, CHEM 211 and CHEM 212.

**BIOL 661. Pathogenic Microbiology (3).**

Focuses on those microbes that produce disease. Most coverage is given to those microbes that cause disease in humans, but zoonotic diseases are also covered. In addition to describing the features of each microbe that enable its pathogenesis, attention is given to the distinctive aspects of its epidemiology, its means of spread and effective countermeasures. Prerequisite(s): BIOL 330 or instructor's consent.

**BIOL 662. Virology (3).**

Focuses on the following aspects of viruses: structure, function, replication strategy, host cell interactions and mechanism of variability. Additional topics include the coevolution of viruses and their host cells, the unique ecological niche occupied by viruses, and the challenge that viruses present when attempting to draw clear distinctions between living and nonliving entities. Prerequisite(s): BIOL 330 or instructor's consent.

**BIOL 666. Special Topics in Biochemistry (3).**

Primarily for students who choose the biochemistry field major. Discusses a small number of current problems in biochemistry in depth. Requires reading published research papers in the field. Students earning graduate credit produce a term paper based on the technical literature on a topic chosen in consultation with the instructor. Prerequisite(s): BIOL 211, CHEM 662 and 663.

**BIOL 666B. Cancer Biology (3).**

The basic mechanisms of carcinogenesis are covered by discussing the control of normal and abnormal cell growth in several model systems. Students earning graduate credit also submit a term paper dealing with a specific topic to be determined by discussion with the instructor. Prerequisite(s): BIOL 420.

**BIOL 669. Research In Biochemistry (2).**

Cross-listed as CHEM 669. Students in the biochemistry field major participate in a biochemistry research project under the direction of a faculty member. Requires a written report summarizing the results. For undergraduate credit only. Repeatable once for credit. Prerequisite(s): BIOL 420, and CHEM 662 or 663, and CHEM 664 and instructor's consent.

**BIOL 710. Glycobiology (3).**

Introduces glycoprotein biosynthesis, structure and function. Covers the various roles of carbohydrates in modifying protein structure and function. Students earning graduate credit prepare a term paper based on the technical literature on a topic chosen in consultation with the instructor. Prerequisite(s): BIOL 420.

**BIOL 725. Biodiversity Analyses (3).**

Surveys the theory, principles, metrics and applications of biodiversity sciences including systematics, biogeography and phylogeny. The pervasive role of phylogenetic data in evolutionary biology (e.g., biogeography, coevolution, speciation, conservation) and other fields (e.g., epidemiology, anthropology, agriculture) are highlighted. Species diversity, species radiations, structure of the tree of life, the wealth of comparative data (from genes to proteins and morphology) and the role of systematics in conservation biology are discussed. Offered fall, even years.

**BIOL 730. Cancer Biology (3).**

The basic mechanisms of carcinogenesis are covered by discussing the control of normal and abnormal cell growth in several model systems. Students earning graduate credit also submit a term paper dealing with a specific topic to be determined by discussion with the instructor. Prerequisite(s): BIOL 420.

**BIOL 738. Plant and Animal Interactions (3).**

Develops and expands basic ecological and evolutionary concepts presented in earlier biology courses including natural selection, coevolution, population growth and factors structuring ecological communities. Applies these concepts to the study of herbivory, pollination by animals and seed dispersal by animals. Designed to improve students' abilities to read current primary scientific literature critically with particular emphasis on identifying and evaluating evidence for hypotheses in ecology and evolutionary biology. Introduces the peer review process and hones students' scientific writing skills. Students write a mini-review article of a current hypothesis in the field of plant-animal interaction. An oral presentation based on the findings of the mini-review is also required. Prerequisite(s): BIOL 418 or equivalent general ecology course.

**BIOL 740. Topics in Graduate Biology (2-4).**

Lecture, laboratory, field techniques, selected readings or discussion course pertaining to a specific biological topic not available in the regular curriculum. May include oral presentations(s) and/or written paper(s). Topics are developed by individual faculty members and reflect current topics, in-depth analysis and biological specialties. Repeatable for credit up to 6 credit hours. Prerequisite(s): any two of the following three courses - BIOL 418, 419, 420; and instructor's consent.

**BIOL 740D. Computing for Biologists (3).**

Almost anything an organismal biologist does with data can be greatly aided by a few basic bioinformatic tools. This course will introduce a number of these, including regular expressions, interacting with computers via the shell, accessing high-performance computing, basic Python scripting, and the R data analysis environment. Prerequisite(s): at least two of the following - BIOL 418, 419, 420 or instructor approval.

**BIOL 740I. Experimental Design (3).**

A general overview of critical components of sound experimental design, common mistakes and philosophical differences in approaches. All students lead 1-2 class discussions on assigned papers. Students earning graduate credit present their own experimental design and lead a class discussion on the approach being used, assumptions and potential weaknesses. Prerequisite(s): any two of the following three courses - BIOL 418, BIOL 419, BIOL 420; or instructor's consent.

**BIOL 740M. Methods in Structural Equation Modeling for STEM (3).**

Provides students with tools to conduct SEM analyses in R (a statistical programming language). SEM allows testing of multivariate cause-effect relationships and allows holistic understanding of the complex relationships common to biological sciences. Prerequisite(s): graduate standing.

**BIOL 760. Experimental Molecular Biology (4).**

2 Classroom hours; 4 Lab hours. Introduces upper-level undergraduate and graduate students to molecular biology techniques. The methodology primarily involves the manipulation of DNA and the expression of genetic material in prokaryotic and eukaryotic systems. Prerequisite(s): BIOL 419 or 420.

**BIOL 767. Mechanisms of Hormone Action (3).**

The mechanism of action of several hormones is described and used to illustrate the major intracellular signal transduction pathways. Includes gonadotropin-releasing hormone, the glycoprotein hormones, luteinizing hormone, follicle-stimulating hormone, chorionic gonadotropin, thyroid-stimulating hormone, steroid hormones, thyroid hormone, activating/inhibin, prostaglandins, insulin and growth hormone. Mostly lectures covering signal transduction pathways. Students write brief summaries of recent research papers related to the current week's

lecture topics. Each student makes an oral presentation of a research paper in journal club format. Students earning graduate credit write a term paper describing in detail a hormone not described in class and its mechanism of action. Prerequisite(s): BIOL 420 and CHEM 662 or their equivalents, plus either BIOL 526 or 534 or their equivalents, and instructor's consent.

**BIOL 773. Statistical Applications in Biology (3).**

Introduces experimental designs and statistical analyses that are commonly used in biological research. Focuses on univariate statistical analyses including t-tests, analysis of variance, nonparametric equivalents of ANOVA, linear regression, goodness-of-fit tests and categorical data analysis. Applications to research questions that arise in biological research, including the students' own research, are emphasized. Students also receive training in the use of statistical analysis computer software. Previous enrollment in STAT 370 is recommended.

**BIOL 780. Molecular Genetics (3).**

Studies the physiochemical nature of genetic material and the mechanisms of genetic regulation of metabolism. Students earning graduate credit produce a term paper and deliver a class seminar based on the technical literature on a topic chosen in consultation with the instructor. Prerequisite(s): BIOL 419.

**BIOL 781. Cooperative Education (1-4).**

Students pursuing the no thesis MS degree may gain practical professional experience, under academic supervision, that complements the student's academic program. BIOL 781N is for internships that last no more than one semester or summer and may be unpaid. The intern experience to be used for credit must be approved by the student's graduate capstone project committee. An academic product from the experience, such as a written summary and/or oral presentation is assigned by the graduate capstone committee. Prerequisite(s): acceptance into MS program.

**BIOL 781N. Internship in Biology (1-4).**

Students pursuing the no thesis MS degree may gain practical professional experience, under academic supervision, that complements the student's academic program. BIOL 781N is for internships that last no more than one semester or summer and may be unpaid. The intern experience to be used for credit must be approved by the student's graduate capstone project committee. An academic product from the experience, such as a written summary and/or oral presentation is assigned by the graduate capstone committee. Prerequisite(s): acceptance into MS program.

**BIOL 797. Departmental Seminar (1).**

Forum for the weekly presentation and discussion of research projects performed by invited scientists from outside departments and institutions, departmental faculty and graduate students. All MS degree-bound graduate students are required to attend the seminar each semester and must enroll in the course for credit during two semesters. Students enrolled in the course must attend all seminars presented in the course, fill out an evaluation of each seminar and make one 15 minute professional-meeting style presentation of their research. Repeatable for credit up to 5 credit hours. Prerequisite(s): acceptance into MS program.

**BIOL 890. Research (1-5).**

Students performing research toward an MS degree in biology should enroll for an appropriate number of hours. A brief written summary of research progress during the semester in which the student is enrolled must be submitted to the student's advisor before a grade is assigned.

**BIOL 891. Thesis (1-2).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Students must be enrolled in this course

during the semester in which the thesis is defended. Repeatable for credit.

## **BLAW - Business Law**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**BLAW 635. Business Law for Accountants I (3).**

Law of contracts, bailments, sales, commercial paper and secured transactions. Centers on the Uniform Commercial Code. Prerequisite(s): junior standing, advanced standing.

**BLAW 636. Business Law for Accountants II (3).**

Law of agency, partnerships and corporations. Considers the organizational and relational aspects of both small, closely held businesses and large corporate enterprises. Prerequisite(s): junior standing, advanced standing.

**BLAW 690. Seminar in Selected Topics (1-5).**

Repeatable for credit with departmental consent. Prerequisite(s): junior standing, advanced standing.

**BLAW 810. Law and Ethics for Business (3).**

An understanding of the foundational principles of the legal system and the laws that impact business is essential to the business leader. Course provides an overview of the legal system and dispute resolution procedures, and covers specific legal topics of particular importance to business leaders, including contracts, torts, constitutional law, product liability, intellectual property, employment law, business entities and business regulation. It introduces students to ethical decision making processes, the major philosophical traditions in ethical theory, as well as principles of corporate governance, corporate responsibility and sustainability. The focus is on stimulating analytical thinking and class discussion about how to apply ethical principles to practical business situations.

## **BME - Biomedical Engineering**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**BME 585. Capstone Design I (3).**

First course in a two-semester capstone design sequence. Focuses on the process of strategic clinical problem solving and innovation through evaluation of real-world diagnostic processes, current therapeutic approaches and clinical outcomes. Students work in teams to identify and critically evaluate unmet medical or clinical needs through the use of a bio design and innovation process, including clinical needs finding through on-site observations, stakeholder assessments, needs statement development and concept generation. Students and their results from this course transition to the next course in this sequence, BME 595, Capstone Design II. For undergraduate credit only. Students must be within three semesters of graduation in order to take this course. Prerequisite(s): BME 335 and program consent.

**BME 590. Independent Study and Research (1-3).**

Independent study or research directed by a faculty member affiliated with the biomedical engineering program. Repeated for credit. A maximum of 3 credit hours may be applied toward graduation. Prerequisite(s): consent of supervising faculty member.

**BME 595. Capstone Design II (3).**

Second course in a two-semester capstone design sequence. Uses design and engineering practice involving a team-based biomedical engineering analysis and design project, including discovering customer requirements, design requirements, biocompatibility, regulatory,

ethical, societal, environmental and economic considerations, creativity, alternative approaches for solution, specific system analysis, project management, prototype construction and testing, and final report and presentation. For undergraduate credit only. Prerequisite(s): BME 482, 585.

**BME 722. Introduction to Biorobotics (3).**

Biorobotics combines human anatomy and physiology, electronics, mechanics and robotics technology using computer programming. It is being investigated for use in prosthetics, surgical and therapeutic devices. Course includes robotic principles, theories and control strategies used to manipulate various robotics devices through human physiological signals in real time. Covers topics on robotics in BME, prosthetics, biosignal processing, microcontroller programming, human sense of touch and virtual world communication. Fundamental knowledge of bioinstrumentation, rehabilitation, robotics and signal processing is demonstrated in the laboratory to create a human-machine-computer interface. Students gain hands-on experience with sensors, microcontrollers, actuators, haptic controllers, robotic arm, prosthetic hand and various MATLAB/Simulink toolboxes in order to implement biorobotics algorithms into 3D simulation and stationary/automobile robotic devices. Prerequisite(s): BME 480 or instructor's consent.

**BME 735. Biocomputational Modeling (3).**

Prepares students for engineering practice by introducing 3D multiphase modeling software. Students use COMSOL multiphase simulation software linked with SolidWorks and MATLAB to solve engineering problems in complex 3D geometries such as the human body. Within the simulation software environment, students define the geometry, set boundary conditions, specify the physics, set material properties, mesh, simulate, and visualize their results. Topics include modeling of biofluid mechanics (e.g., stress and strain on arteries), heat and mass transfer (i.e., bioheat and drug delivery), and structural mechanics (i.e., stress and strain on bone). Computer simulation has become an essential part of science, medicine and engineering. Course gives students hands-on experience to meet those demands. Prerequisite(s): either BME 462 or ME 521, and BME 335 or its equivalent; or instructor's consent.

**BME 738. Biomedical Imaging (3).**

Prepares students with knowledge of medical imaging and gives hands-on experience with ultrasound imaging, dual-energy x-ray absorptiometry (DEXA), spectral imaging, and medical image processing labs. Covers medical imaging modalities such as planar x-ray, x-ray computed tomography (CT), DEXA, magnetic resonance imaging (MRI), nuclear medicine imaging-positron emission tomography and single-photon emission computed tomography, ultrasound imaging, and spectral imaging. Students gain hands-on experience with medical image processing software to import CT or MRI scans and construct 3D models of human anatomy. Introduces fundamental physical and engineering principles used in medical imaging and image processing, with a primary focus on physical principles, instrumentation methods, and image processing methods. Strengths, limitations, sensitivity and appropriate applications for each modality of imaging are also examined. Prerequisite(s): PHYS 314 and BME 335 or its equivalent; or instructor's consent.

**BME 743. Mechanobiology of Cells and Tissue (3).**

Focuses on how the mechanical environment influences cell behavior and integrates principles from engineering, cell biology, physiology and biomedicine. Topics include, but are not limited to: (1) global/health importance of mechanobiology; (2) the role mechanical forces play in normal cell function and disease; (3) the role of the mechanical environment in regenerative medicine and tissue engineering applications; (4) how the extracellular matrix and biomimetic

matrices alter cellular function; (5) how cells sense and respond to mechanical forces; (6) the mechanobiological feedback loop; (7) cell and tissue mechanics; (8) microscopy of cells and tissues; and (9) experimental methods to study cellular mechanobiology. Emphasizes experimental design, data analysis, interpretation of data and results, and hands-on laboratories. Students gain firsthand experience with cell culture techniques, microscopy, and experimental and computational techniques in cell mechanobiology. Prerequisite(s): BIOL 210, BME 452 or equivalent, or instructor's consent. Corequisite(s): BME 743L.

**BME 743L. Mechanobiology of Cells and Tissue Lab (0).**

Lab component to BME 743. Corequisite: BME 743.

**BME 748. Biomolecular and Cellular Engineering (3).**

Focuses on the molecules and mechanisms underlying cellular function from an engineering point of view. Emphasizes experimental methods, mathematical analysis and computational modeling. Hands-on laboratories complement lectures. Topics include, but are not limited to: (1) enzymes and biochemical kinetics; (2) cell signaling and modeling signaling pathways; (3) biophysical-based models of biological/biochemical systems; (4) gene expression and regulation; (5) 'omic' approaches to cell signaling including data analysis of high-throughput data; (6) system biology approaches – analysis of complex biological systems across multiple temporal and spatial scales; (7) bioinformatics; and (8) quantitative experimental methods related to biomolecular and cellular engineering. Applications to tissue engineering, regenerative medicine, biotechnology, bionanotechnology, drug and gene delivery, molecular medicine and personalized medicine are discussed. Prerequisite(s): BIOL 210, BME 335 or equivalent, MATH 555; or instructor's consent.

**BME 752. Applied Human Biomechanics (3).**

Examines the biology, physiology, and structure of skeletal muscle, the mechanisms of skeletal muscle force generation, and the adaptations to muscle that arise from changes in muscle usage. Students learn to create biomechanical models and generate simulations of human movement based on data collected in a human biomechanics lab. Experimental design and data analysis and interpretation are emphasized. Prerequisite(s): BIOL 223 and BME 452 or its equivalent; or instructor's consent.

**BME 757. Clinical Biomechanics Instrumentation (3).**

2 Classroom hours; 2 Lab hours. Students learn to collect, process, analyze and interpret motion of the human body (e.g., running, walking, jumping, lifting, etc.), muscle force, muscle activity and acceleration data using various equipment in a human biomechanics lab. The equipment and techniques used are common to multiple fields and disciplines, including physical medicine and rehabilitation, orthopedics, physical therapy, prosthetics and orthotics, wearable biosensors, sports performance and medical/sport/safety equipment design. Prerequisite(s): BME 452 or instructor's consent. Corequisite(s): BME 757L.

**BME 760. Special Topics in Biomedical Engineering (3).**

Focuses on a contemporary biomedical engineering topic through traditional lecture, research and/or experiential learning activities. Content changes as new problems and research advances related to biomedical engineering attain prominence nationally and internationally. Repeatable for credit. Prerequisite(s): instructor's consent.

**BME 760A. Brain-Computer Interfaces (3).**

Covers theoretical and experimental knowledge on neuroengineering, neuroscience and neurorobotics systems currently being utilized for brain-computer interface (BCI) technology. Provides hands on learning experience using innovative hardware and software tools to

acquire, process and analyze human brain signals and integrate robotics technology with current BCI models for real-time control of virtual environment and assistive/robotic devices. Students gain knowledge to perform BCI experiments in offline and online modes, understand signal processing and machine learning techniques to extract features, and design BCI-based human-machine interaction models for various assistive and/or rehabilitative technology. Prerequisite(s): BME 722 or instructor's consent.

**BME 760B. Biomedical MEMS (3).**

Biomedical microelectro mechanical systems (MEMS) is the application of MEMS technology in the fields of biomedical and health sciences which has seen tremendous growth in the past decade. Covers theoretical and experimental knowledge on biomedical MEMS technology, various microfabrication techniques that are commonly used in biomedical MEMS device fabrication (e.g. epidermal electronics, microfluidic devices, lab-on-a-chip and biosensors) and the underlying physical principles. Includes discussion of recent and future trends in biomedical MEMS. Students gain a broad perspective in the area of micro/nano systems for biomedical and chemical applications. Prerequisite(s): PHYS 314, MATH 555 and BME 477; or instructor's consent.

**BME 760C. Medical Image Processing (3).**

Introduces medical image processing and gives students experience in working with MRI scan data sets and CT x-ray scan data sets using Materialise Interactive Medical Image Control System (MIMICS). Students learn how to perform image segmentation, learn how a part is created from a mask, perform threshold based segmentation to create a part, take measurements from the data set, segmentation of arteries using dynamic region growing, airway segmentation for modeling, translating a stack of 2D image data sets into 3D patient specific geometries, and work with DICOM data sets as medical image files. Prerequisite(s): BIOL 223 or instructor's consent.

**BME 771. Polymer Processing and Technology (3).**

Introduces the design and manufacture of polymer products emphasizing polymer processing and technology. Discusses fundamental polymeric concepts as they relate to polymer processing. Reviews topics related to solid-state properties, polymer viscoelasticity and polymer melt rheology. Industrial processing operations such as extrusion, injection molding, additive manufacturing, compression molding, polymer blending and mixing, and thermoforming foaming are discussed in detail, highlighting appropriate materials and processing methods for several engineering applications. Prerequisite(s): CHEM 211, and PHYS 213 or PHYS 313; or graduate standing.

**BME 777. Biodegradable Materials (3).**

Comprehensive overview of biodegradable materials as it relates to their applications in the biomedical and health care fields. Covers in detail different classes of biodegradable materials including biodegradable polymers, ceramics and metals. Synthesis, characterization and degradation of these materials in the biological environment are covered. Biodegradation/biocorrosion mechanisms of these materials, the complexity of the response of the biological environment, and the experimental methods for monitoring the degradation process are discussed, as well as strategies for surface modification to control the degradation. Finally, specific applications are covered. Prerequisite(s): either BME 477 or ME 651; or instructor's consent.

**BME 779. Tissue Engineering (3).**

Introduces the strategies and fundamental bioengineering design criteria behind the development of tissue substitutes. Principles of engineering and the life sciences toward the development of biological substitutes that restore, maintain or improve tissue function are covered. Topics

include stem cells, cell growth and differentiation, cell signaling, materials for scaffolding, scaffold degradation and modification, cell culture environment, cell nutrition, cryopreservation, bioreactor design, clinical applications, regulatory and ethics. Prerequisite(s): BME 477 or instructor's consent.

**BME 791. Badge: Biomedical Engineering Topics (0.5-1).**

An umbrella course created to explore a variety of subtopics differentiated by letter (e.g., 791A, 791B). Not all subtopics are offered each semester – see the course schedule for availability. Students enroll in the lettered courses with specific topics in the titles rather than in this root course. Graded Bg/NBg.

**BME 791BA. Badge: Muscle: Practical Blood Flow Restriction Applications (0.75).**

Explores the growing body of research around skeletal muscle as an endocrine organ that releases metabolites that affect other organs. Included in this study are the metabolic effects of various exercise approaches including practical Blood Flow Restriction (pBFR) as this approach can serve as an integral complement to a comprehensive strengthening program across the age and disability spectrum. Graded Bg/NBg. Prerequisite(s): instructor's consent.

**BME 791BB. Badge: Exercise as Medicine (0.5).**

This badge course explores the foundations of molecular biology with exercise. It expands on the badge course, Muscle: Practical Blood Flow Restriction Applications (BME 791BA) to further explore the concept of the skeletal muscle as an endocrine organ and discusses the manipulation of metabolic pathways, the conformation changes of proteins including hemoglobin and ATPase, the biomolecular pathways of mitochondrial biogenesis, as well as muscle protein degradation due to immobilization, and the phenomenon of adaptive response. Graded Bg/NBg.

**BME 876. Thesis (1-6).**

Student driven research experience to address a specific research question. Potential thesis topics should be formulated by the student and discussed with their MS thesis adviser. Repeatable for credit up to 6 credit hours. Prerequisite(s): consent of MS thesis adviser.

**BME 890. Independent Study (1-3).**

Arranged individual independent study in specialized content areas under the supervision of a faculty member. Repeatable for credit. Prerequisite(s): consent of supervising faculty mentor.

**BME 976. PhD Dissertation (1-16).**

Student driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for credit. Prerequisite(s): admission to doctoral aspirant status.

## BSAN - Business Analytics

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**BSAN 675. Analytics Decision Modeling with Spreadsheets (3).**

Cross-listed as FIN 675. Introduces key principles of business analytics modeling: descriptive, predictive and prescriptive. Models covered in each area may differ from semester to semester. Students learn how to make decisions not based on intuition or "gut feel," but on models and data. Course adopts a practical approach to the modeling of a wide variety of business problems in various functional areas. Models are built in Excel and add-ins to Excel, allowing students to gain advanced Excel skills, which will benefit them in their careers. For undergraduate credit only. Prerequisites: DS 350 and FIN 340 each with a grade of

C or better; BADM 162, ECON 231, and ECON 232 or equivalents; junior standing; advanced standing; or instructor's consent.

**BSAN 734. Introduction to Data Mining and Analytics (3).**

Introduces the theory, application and interpretation of basic analysis methods for analyzing existing datasets. Topics include data preprocessing, data exploration and visualization as well as specific methods for regression, classification, cluster analysis and association analysis. Focuses on learning the data mining tasks that each method addresses, the assumptions of each method, the inputs needed, the outputs, interpretation of results, and evaluation of the quality of the analysis. Uses Python to cover these different methods. Course is mainly targeted for graduate students. Students cannot receive credit for both BSAN 734 and IME 734.

**BSAN 775. Perspectives on Business Analytics (3).**

Overview of the different perspectives of the field of analytics from math to computer science to business and more. Focuses on business analytics, starting with sources of big data, data collection and the ethical challenges associated with using data. Covers the various deterministic and prescriptive optimization models using scenarios from various business functions (operations/supply chain, finance, marketing, human resources, etc.). Students learn how to frame the problem, formulate it, solve it with Excel, then analyze and report the results. Course provides a good understanding of data analytics as applied to business, but also an appreciation for the importance of the field of data science. For graduate credit only. Prerequisite(s): familiarity with Excel and graduate student status.

**BSAN 875. Advanced Business Analytics (3).**

Overview of analytical models, with a focus on probabilistic models where the decision to be made is based on uncertain events, or prior data does not exist (e.g. introducing new products to market). This introduces risk in business that needs to be measured and planned for. The models covered include decision trees, simulation, machine learning and artificial intelligence algorithms. Students learn how to use such models in business, and not how to program the code behind the algorithm. Students mainly use Excel, advanced add-ins to Excel (Palisade), and freely available open source algorithms coded in Python. Students also use advanced visualization software like PowerBI Desktop to prepare, connect, analyze and visualize data from multiple sources. Prior enrollment in BSAN 675/FIN 675 is recommended, but not required. Prerequisite(s): BSAN 775 or equivalent or instructor's approval is highly recommended; familiarity with Excel.

**BSAN 885. Business Analytics Capstone (3).**

Provides an opportunity for students to work on a project that draws on the skills learned from descriptive, predictive and prescriptive analytics modeling to frame a business problem, work effectively with data, visualize data, and use statistical or optimization models to support data-driven decision-making processes. Whenever possible, projects are based on a real business problem faced by organizations in the business community. The capstone project also furthers student skills in developing business insight from quantitative analysis, knowledge of functional areas in business or/and specific industries, managing a project from start to finish, communicating with stakeholders, and using storytelling to present the final project.

## CAS - Applied Studies

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**CAS 501. Teacher Licensure Capstone (0).**

Teacher education candidates are required to complete and receive a passing score on the Teacher Licensure Capstone (TLC) during

their final internship or when designated by their program. The TLC is a licensure requirement, not a program requirement. All WSU graduates applying for teacher licensure in Kansas are required to have a passing score on the TLC. The TLC provides the teacher candidate an opportunity to demonstrate how he/she uses contextual factors in a classroom to design and implement a unit of study. The teacher candidate provides information about the unit's lesson plans and assessments; specific information about how the instruction is modified for a subgroup or focus student within the classroom; and the teacher candidate reflects on the implementation of the unit for the whole class and subgroup or focus student. Repeatable for a total of three enrollments.

**CAS 750A. Effective Instructional Practices I (0.5-7).**

Participants learn about various instructional strategies to enhance learning experiences in education. Instructional methods include such collaborative educational models as small and large group teaching, team-based, interactive and experiential case-based learning. Focuses on educator behaviors that stimulate achievement in learners. With an appreciation of the diversity of the student body, participants effectively integrate and apply technology into instruction, when appropriate, to develop and deliver curricula to enhance student learning. Repeatable for credit.

**CAS 750B. Effective Instructional Practices II (0.5-7).**

Participants continue to learn about various instructional strategies to enhance learning experiences in education. Instructional methods include such collaborative educational models as small and large group teaching, team-based, interactive and experiential case-based learning. Focuses on educator behaviors that stimulate achievement in learners. With an appreciation of the diversity of the student body, participants effectively integrate and apply technology into instruction, when appropriate, to develop and deliver curricula including web-based teaching environments, content management systems, collaborative project development and interactive media with an emphasis on instructional design advancements which affect the learning environment. Repeatable for credit.

**CAS 750C. Adaptive Schools Seminar (1-4).**

The Adaptive Schools Foundation and Advanced Seminars present a productive, practical set of ideas and tools for developing collaborative groups in becoming effective and better equipped to resolve complex issues around student learning. The work of the Adaptive Schools Seminars is to develop the resources and capacities of the organization and of individuals to cohesively respond to the changing needs of students and society.

**CAS 750D. Effective Instructional Practices III (0.5-7).**

Examines various instructional strategies to enhance learning experiences in education. Instructional methods include such collaborative educational models as small and large group teaching, team-based, interactive and experiential case-based learning. Focuses on educator behaviors that stimulate achievement in learners. With an appreciation of the diversity of the student body, participants effectively integrate and apply technology into instruction, when appropriate, to develop and deliver curricula to enhance student learning. Repeatable for credit.

**CAS 750E. Effective Instructional Practices IV (0.5-7).**

Expands on previous examinations of various instructional strategies to enhance learning experiences in education. Instructional methods include such collaborative educational models as small and large group teaching, team-based, interactive and experiential case-based learning. Focuses on educator behaviors that stimulate achievement in learners. With an appreciation of the diversity of the student body, participants effectively integrate and apply technology into instruction, when appropriate, to develop and deliver curricula

including web-based teaching environments, content management systems, collaborative project development and interactive media with an emphasis on instructional design advancements which affect the learning environment. Repeatable for credit.

**CAS 750F. Effective Instructional Practices V (0.5-7).**

Continues to examine various instructional strategies to enhance learning experiences in education. Instructional methods include such collaborative educational models as small and large group teaching, team-based, interactive and experiential case-based learning. Focuses on educator behaviors that stimulate achievement of learners. With an appreciation of the diversity of the student body, participants effectively integrate and apply technology into instruction, when appropriate, to develop and deliver curricula to enhance student learning. Repeatable for credit.

**CAS 750G. Effective Instructional Practices VI (0.5-7).**

Expanded examination of various instructional strategies to enhance learning experiences in education. Instructional methods include such collaborative educational models as small and large group teaching, team-based, interactive and experiential case-based learning. Focuses on educator behaviors that stimulate achievement of learners. With an appreciation of the diversity of the student body, participants effectively integrate and apply technology into instruction, when appropriate, to develop and deliver curricula including web-based teaching environments, content management systems, collaborative project development and interactive media emphasizing instructional design advancements which affect the learning environment. Repeatable for credit.

**CAS 750I. Effective Instructional Practices VII (0.5-10).**

Designed for educators who are continuing to learn about various instructional strategies to enhance learning experiences within their classroom. Focuses on educator behaviors that stimulate learner's achievement. With an appreciation of the diversity of the student body, participants effectively integrate problem solving, critical thinking and creativity into instruction, when appropriate, to develop and deliver curricula in a safe, inclusive environment. Repeatable for credit.

**CAS 750J. Effective Instructional Practices IX (0.5-7).**

This course is for educators who are continuing to learn about various instructional strategies to enhance learning experiences within their classroom. The focus is on instructional methods that allow for integration of technology and other various instructional strategies in the classroom while focusing on classroom management that stimulate learner's achievement with an appreciation of the diversity of the student body. Repeatable for credit.

**CAS 750K. Effective Instructional Practices VIII (0.5-7).**

Designed for educators who are continuing to learn about various instructional strategies to enhance learning experiences within their classroom. Focuses on educator behaviors that stimulate learner's achievement with an appreciation of the diversity of the student body. Repeatable for credit.

**CAS 750L. Becoming a Learning Leader (0.5-7).**

This course is for educators who are ready or continuing to learn about leadership whether it is as a classroom teacher, instructional coach or administrator. Participants focus on the in-school influences leadership has on student success and its impact in schools with the greatest needs. Repeatable for credit.

**CAS 750M. Effective Teaching and Learning Strategies for PreK-12 Educators I (0.5-7).**

For educators who are seeking continuing education on classroom strategies that impact PreK-12 academic development. This course is one in a series of workshop courses where educators engage in a

variety of professional development opportunities to enhance learning experiences within their classroom. Repeatable for credit.

**CAS 750N. Effective Teaching and Learning Strategies for PreK-12 Educators II (0.5-7).**

This course is one in a series of workshop courses where educators engage in a variety of professional development opportunities to enhance learning experiences within their classroom. Repeatable for credit.

**CAS 750O. Effective Teaching and Learning Strategies for PreK-12 Educators III (0.5-7).**

This course is one in a series of workshop courses for educators who are seeking continuing education on classroom strategies that impact PreK-12 academic development. Repeatable for credit.

## **CESP - Counseling, Educational and School Psychology**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**CESP 701. Introduction to Educational Research (3).**

Includes (1) the nature of research methodologies, (2) the preparation of research reports, (3) critical reading of research, and (4) ethics and integrity in conducting and reporting research. Fulfills the university's professional and scholarly integrity training requirement covering research misconduct, publication practices and responsible authorship, conflict of interest and commitment, ethical issues in data acquisition, management, sharing and ownership. Prerequisite(s): graduate standing.

**CESP 704. Introduction to Educational Statistics (3).**

Introduces statistics, including measures of central tendency, measures of variability, correlation, chi square, t-test, correlated t-test, one-way, two-way analysis of variance and simple regression.

**CESP 728. Theories of Human Development (3).**

Describes what developmental theories are, what they do, where they come from, how they work and how they are used to explain human nature. Uses theoretical assumptions and related research to systematically evaluate developmental theories in terms of their scientific worthiness and their ability to address characteristics of human development. Focuses on those theories which helped shape the current view of human development as well as significant new perspectives which may shape the way it is viewed in the future. Pre- or corequisite(s): CESP 858 or CLES 801 or CLES 810.

**CESP 729. Theories of Early Childhood Development (3).**

Describes what developmental theories are, what they do, where they come from, how they work and how they are used to explain human nature. Uses theoretical assumptions and related research to systematically evaluate developmental theories in terms of their scientific worthiness and their ability to address characteristics of early childhood development. Focuses on those theories which helped shape the way we currently view early childhood development as well as significant new perspectives which may shape the way we view it in the future. Covers birth through elementary school years of development. Prerequisite(s): CESP 701 or CLES 801, or equivalent, or instructor's consent.

**CESP 750. Workshops in Education (1-6).**

Intensive study of topics related to education. Differing topics are denoted by a letter following the course number (i.e., 750C, 750P, etc.).

**CESP 750AA. How Boys and Girls Learn Differently (1).**

Provides participants with the latest research-based information identifying the basic differences, learning styles, and abilities of each

gender. Special attention is devoted to the debate of Nature vs. Nurture and its impact on the learning styles of males and females.

**CESP 750AC. Interpersonal Skills for Teachers (1).**

Focuses on nonverbal communication, using "I" messages, conversation starters, active listening, giving and accepting forgiveness, and developing trust.

**CESP 750AD. Parenting Techniques (1).**

Students learn basic parenting techniques to help develop their children's self-concept, responsibility and self-control. Discusses different parenting theories.

**CESP 750D. Engineering Research Writing (1).**

Teaches students how to create, research and write a simple graduate-level paper, using strict document formatting based on the most recent edition of the APA Style Guide.

**CESP 750E. Tutoring Techniques (1).**

Workshop goal is to ensure all tutors have the skills necessary to provide effective tutorial assistance to students enrolled in the TRIO Student Support Services Program at Wichita State University. Tutors are expected to set an example of excellence in ethics and in academics for their students. By successfully completing this workshop, the tutors will have reached objectives that are directly related to the measurable objectives set by the Student Support Services Program, which is funded by the U.S. Department of Education. These objectives guide the peer-tutors toward fulfilling their main responsibility to assist each of their students to understand the content of their coursework and improve their grades.

**CESP 750G. How Families Function (1).**

Designed for school and agency employees to understand how families function by learning about different family theories and family therapies so they can become better teachers, counselors, and administrators.

**CESP 750X. Brain Retraining (1).**

Teachers and counselors learn how the brain can be retrained for optimizing learning through the introduction of educational kinesiology, brain gym, Bal-a-vis-x, cup stacking and others. Resources are shared on how to obtain training and certification in these programs.

**CESP 750Z. Stress Management Technique (1).**

Teachers and counselors learn different stress management techniques such as: relaxation, assertive behavior, financial management, anxiety reduction, appropriate diet and exercise. Students learn how to assess stress and make a stress reduction behavior management plan for themselves or students.

**CESP 751A. Anger Management Techniques (1).**

Teachers and counselors learn different anger management techniques such as: rational self-instruction, relational aggression, anger management classes, videotherapy, and bibliotherapy.

**CESP 751D. Working Effectively With Parents (1).**

Explores the topic of effective communication with parents in educational and agency settings. Provides strategies to work effectively with all types of parents. Helps students understand how to build a relationship with the student and parent and gives practical and realistic strategies in working with parents dealing with ADD, stress, depression and attention seeking students. Shows how to work with a culturally diverse population and help integrate the community into the school setting.

**CESP 751E. Dealing with Boys in School (1).**

Provides participants with the latest research-based information identifying the challenges that male students face in achieving success in schools today including societal, academic and behavioral issues.

**CESP 751R. Gender Communication (1-4).**

Provides participants with the latest research-based information identifying the basic differences in the communication styles of men and women.

**CESP 752. Special Studies in Education (1-3).**

For students with personnel and guidance interests. May emphasize different preselected areas during a semester. Repeatable for credit with advisor's consent. Prerequisite(s): instructor's consent.

**CESP 753L. Filial Play Therapy (1).**

Filial Play Therapy, also known as Child-Parent Relationship Training, is an evidence-based training program to improve the relationship between parents and children. No play therapy model has been more researched nor found to be as effective as filial therapy. The method uses the basic tenets of child-centered play therapy to teach parents to improve their relationship with their child, be more aware and sensitive to their child's needs, and to promote healthy development. Filial play therapy has been successfully employed with parents, teachers and paraprofessionals to support the emotional growth and development of children for over 40 years.

**CESP 781. Cooperative Education (1-3).**

Work-related placement that integrates theory with a planned and supervised professional experience. Repeatable for credit with advisor approval for a total of 4 credit hours.

**CESP 803. Counseling Theory (3).**

Studies selected theories of counseling. A minimum grade of B- or better is required for school psychology students. A minimum grade in CESP 803 of B or better is required for counseling students in order to move on to the counseling practicum courses (CESP 856 or CLES 860). Prerequisite(s): admission to counseling or school psychology program or instructor's consent.

**CESP 804. Foundations of School Counseling (3).**

Introduces the role of the school counselor and comprehensive, developmental school counseling programs. Examines basic concepts in counseling, and the function of the helper in school settings. Focuses on the demands and strains of the helping professions and their effects on the helper. Designed to provide students with an overview of theory, practice, methods, basic principles and concepts, and to help students develop a professional identity in the counseling field. Prerequisite(s): admission to counseling program or instructor's consent.

**CESP 808. School Psychology Professional Issues (3).**

Examines roles and functions of school psychologists within the context of the historical foundations of the profession. Uses lecture, discussions, observations in schools, and presentations by field-based school psychologists to acquaint students with the kinds of problems with which school psychologists typically work, the methods they employ to deal with problems, social systems in which these endeavors occur, and professional issues that shape and characterize the profession.

**CESP 811. Principles of Measurement and Program Evaluation (3).**

Covers the transdisciplinary field of program evaluation including history and current trends, alternative program evaluation models, program evaluation standards, program evaluation procedures, data collection instrument development and interpretation, data analysis, and reporting of evaluation results. Prerequisite(s): CESP 704 and CLES 801, or equivalent.

**CESP 815. Career Development (3).**

For master's-level students interested in assisting students and adults in career development and related concerns. Covers (1) career development of individuals across life span, (2) sources and organization of information, (3) assessment designs and career

intervention techniques, and (4) career decision-making/planning processes. Includes hands-on experience with a variety of assessment methods and intervention techniques and theory-based career decision-making strategies for career interventions.

**CESP 820. Learning Theory and Instruction (3).**

Applications of some major learning theories and learning principles. Prerequisite(s): CLES 728, and CLES 801 or CLES 810, or departmental consent.

**CESP 821. Multicultural Issues (3).**

Students acquire knowledge and skills that enable them to offer help to individuals in a multicultural environment. Focuses include developing a sense of the student's own cultural identity, increasing sensitivity to cultural differences in help-seeking attitudes and behaviors, and understanding how the potential sources of cultural misunderstanding, biases and prejudice may affect their professional effectiveness. *Course includes diversity content.* A minimum grade of B- or better is required for school psychology and counseling students.

**CESP 822. Assessment and Testing in Counseling (3).**

Study of the historical perspectives of assessment and the use of assessments for diagnostic and intervention planning. Includes the basic concepts of assessments, including statistical concepts such as reliability and validity. Provides preparation on the methods of conducting assessment meetings, procedures for identifying risk of harm to self or others, identifying trauma, and the ethical and culturally relevant practice of assessment in counseling.

**CESP 823. Experimental Design in Educational Research (3).**

Focuses on the use of inferential statistics for various experimental designs. Parametric topics covered include t-test, one-way and factorial analysis of variance and covariance (with and without repeated measures), post-hoc comparisons, and simple and multiple regression. Also covers selected nonparametric statistics. Develops all statistics through practical application with computer programs. Prerequisite(s): CESP 704 or instructor's consent.

**CESP 824. Techniques of Counseling (3).**

Examines and practices techniques of counseling through simulated counseling situations and extensive examination of counseling case studies. School psychology students: A minimum grade of B- is required to pass course. Counseling students: A minimum grade of B is required to move on to the counseling practicum courses (CESP 856 or CLES 860). Prerequisite(s) with Concurrency: counseling students: CESP 803.

**CESP 825. Group Counseling and Group Work (3).**

Examines the theoretical foundations of group work, group dynamics, group leadership, and the process for planning and conducting group work that is ethical, culturally relevant and effective. Prerequisite(s): CESP 803 and 824 with a minimum grade of B; minimum grade in CESP 825 is a B in order to move on to the internship course (CESP 949A, 949B, 949C or CLES 952A, 952B, 952C).

**CESP 827. Field Experiences for Non Education School Counseling Students (3).**

Structured field experiences in school settings for students without a teaching license who wish to be eligible for provisional licensure as a PreK-12 school counselor prior to graduating with their counseling degree. To meet KSDE requirements for provisional license after completing CESP 856, students must have completed 50 percent of the credit hours required for the school counseling degree track and enroll in CESP 827 for one semester simultaneously with CESP 856. CESP 827 requires 35 clock hours of defined school counseling experiences. Prerequisite(s): CESP 824. Corequisite(s): CESP 856.

**CESP 831. Social Psychology for Educational and Helping Professions (3).**

A critical study of an individual's thoughts, feelings and behaviors, based on the influences of, and the impact and interactions with, social settings and the individual's culture. Theory, research and practice in relation to social, developmental, psychological and educational issues and problems are discussed throughout the course. Furthermore, this is examined in the context of how it may impact the helping relationship. Students study the relationship between social settings and the psychological functioning of children, adolescents and adults. Students also study the role of educational and psychological professionals within the cultural, academic and organizational operations of education. Prerequisite(s): CLES 801 (previously taught as CESP 701) or equivalent, CESP 728 or equivalent, or instructor's consent.

**CESP 834. Biological Principles and Psychological Functioning for School Psychologists (3).**

Biological bases of behavior and implications for assessment and intervention within school settings are major topics. Neuropsychological assessment and intervention, sensory and motor functioning, and psychopharmacological treatments relevant to children's functioning in school comprise a major component. Specially designed for school psychologists. Prerequisite(s): graduate standing in the CESP department (enrolled in a degree program or nondegree A status in CESP), or instructor's consent.

**CESP 835. Psychopathology and the DSM (3).**

Introduction to psychopathology for graduate students preparing for careers in school psychology, counseling and related professions. Mental disorders occurring in children as well as adults are studied. The Diagnostic and Statistical Manual of Mental Disorders (DSM) is used as the diagnostic system for understanding psychopathology. Assessment procedures, prevention programs and treatment/intervention approaches are considered for the mental disorders studied.

**CESP 838. Counseling Families in Crisis (3).**

Teaches basic family processes and how they impact the growth and development of children and adolescents. Covers the family life cycle, healthy and maladaptive family functioning including appropriate and inappropriate parenting practices, the unique challenges faced by single parent and blended families, the impact of substance use on families, the impact of traumatic experiences on families, basic family assessment, and basic family therapy techniques. In addition, acquaints students with the etiological factors, potential indicators, consequences, reporting strategies, and treatment strategies associated with child abuse and neglect. Prerequisite(s): graduate standing.

**CESP 840. Introduction to School Psychology and Exceptional Children (3).**

Introduces students to the field and practice of school psychology as a specialty in the professional psychology field. Provides students with the foundational knowledge necessary to understand the theoretical professional issues related to the practice of school psychology. Also covers specifics regarding identifying and working with exceptional children. Examines the conceptual and theoretical formulations, empirical evidence and research concerning the behavioral characteristics of exceptional children.

**CESP 841. Fundamentals of Play Therapy (3).**

Covers the historical development of play therapy as a treatment procedure, through current trends and practices of major disciplines in the field. Primary emphasis is on the development of fundamental skills and practices of major disciplines in the field, and strategies necessary to conduct successful play sessions. The effectiveness of play therapy with various diagnostic populations is discussed. Prerequisite(s): master's degree in counseling or related field or program consent.

**CESP 842. Play Therapy for Young Children (3).**

Examines the use of play therapy with young children. Emphasizes the developmental concepts and diagnostic approaches and issues of young children and their caregivers. Therapy strategies covered include treatment of regulation problems, filial therapy, floor time, interaction guidance, infant/parent relationship training and other strategies. Prerequisite(s): master's degree in counseling or related field or program consent.

**CESP 843. Child Psychopathology in Play Therapy (3).**

Examines common childhood diagnoses that present for treatment. Topics include: Reactive Attachment Disorder, Oppositional Defiant Disorder, Conduct Disorder, Separation Disorder, Post Traumatic Stress Disorder, as well as other common DSM IV diagnoses. The class discusses symptoms and the child's clinical presentation. Appropriate treatments, including the use of play therapy and other therapy activities is also covered. Prerequisite(s): master's degree in counseling or related field, CESP 841 or equivalent course; or program consent.

**CESP 844. Advanced Techniques in Child and Play Therapy (3).**

An advanced skills class, building on the fundamental and requisite skills learned in an introductory course in play therapy. Emphasizes enhanced understanding and use of the nature and construction of therapeutic responses in the play therapy process. Explores the use of play therapy with varied therapeutic approaches and special populations. Prerequisite(s): master's degree in counseling or related field, CESP 841 or equivalent course; or program consent.

**CESP 845. Professional School Counseling (3).**

Prepares students to apply basic counseling skills in a school setting. Students are trained in the ASCA National Model of School Counseling. It emphasizes the various roles of K-12 school counselor, tools and strategies appropriate in those settings, and consultation and collaboration with other school personnel. It covers concepts and techniques of the counseling process in K-12 schools, behavioral and developmental problems, and releasing creative capacities of students. *Course includes diversity content.* Prerequisite(s): admission to the counseling degree program, CESP 804 or departmental consent.

**CESP 847. Addiction Counseling (3).**

Provides counselors and other human service workers with an overview of the addictive process. Theories of addiction counseling and application of these theories comprise a significant part of this course, particularly with how they apply to work with individuals, couples, families and groups. Co-occurring disorders, such as process addictions and mental illnesses, are also addressed. Students develop conceptual knowledge, practical skills and self-awareness concerning the etiology of addiction, addiction assessment strategies, wellness strategies for facilitating optimal development and preventing clinician burn-out, and diagnosis and treatment planning. *Course includes diversity content.* Prerequisite(s): graduate standing.

**CESP 848. Crisis Counseling (3).**

Introduces students to crisis intervention theory, development and applications. Provides an overview of crisis theories, assessment procedures, techniques and counseling processes used with adolescents and adults in school and community settings. Prerequisite(s): CLES 801, CESP 803, 804, or instructor's consent.

**CESP 852. Special Studies (1-3).**

Covers specific topics identified by the department in consultation with institutions or groups of graduate students. Course procedures vary according to topic. Repeatable for credit. Prerequisite(s): instructor's or departmental consent.

**CESP 853. Ethics and Professional Conduct (3).**

Cross-listed as CI 797. Introduces ethical and professional responsibilities of school psychologists and behavior analysts. Covers

topics related to informed consent, due process, confidentiality and selection of least intrusive, least restrictive behavior change procedures. School psychology students: no grade below B- (2.750) will count toward the degree. Prerequisite(s): instructor's consent.

**CESP 854. Individual Achievement Assessment (3).**

Explores various applications of measures of cognitive processing and academic achievement in reading, writing and mathematics. Examines the classification systems of learning differences, their neurological bases, the administration and interpretation of selected processing and achievement measures, and critical issues related to provision of evidence-based interventions and services. Includes case simulation and practice activities. A minimum grade of B- or better is required for school psychology students. Prerequisite(s): CESP 855.

**CESP 855. Individual Intelligence Assessment (3).**

Covers the use of individual tests for assessing intelligence. Examines the nature of intelligence, theory, administering, interpreting selected individual intelligence tests and critical issues related to assessing intelligence. Includes case simulation and practice activities. A minimum grade of B- or better is required for school psychology students. Prerequisite(s): instructor's consent. Corequisite(s): CESP 858.

**CESP 856. School Counseling Practicum (1-3).**

Supervised school counseling experience. Minimum of 100 hours of professional counseling service that includes a minimum of 40 hours of direct client contact experience in counseling, with the remainder of hours (60) in indirect client service. CESP 856 builds on the skills learned and practiced in CESP 824. Prerequisite(s): CESP 824 with a grade of B or better within the last 12 months; CESP 803 and departmental consent. Minimum grade in CESP 856 is a B in order to move on to the internship course (CESP 949 or CLES 952).

**CESP 857. Professional and Ethical Issues in Counseling (3).**

Covers major ethical, legal and professional issues involved in professional counseling, education and psychology in school settings. Students engage in dialog throughout the course and work in peer consultation teams to identify and resolve ethical dilemmas and adopt sound ethical and professional practices.

**CESP 858. Research, Program Evaluation and Assessment (3).**

Introduces students to important concepts related to assessment, research, statistics and program evaluation for school psychologists and provides an in-depth examination of the assessment process. Studies the basic concepts pertaining to psychological tests and inventories, including basic measurement theory and uses of individual assessment techniques for evaluating the factors involved in the selection of tests and assessment of learning difficulties of preschool and school-aged children. Fulfills the university's professional and scholarly integrity requirement covering research misconduct, publication practices and responsible authorship, conflict of interest and commitment, and ethical issues in data acquisition, management, sharing and ownership. Emphasizes planning the assessment, interpretation and integration of assessment data, proposing relevant interventions, and communicating assessment findings to others. For school psychology students: no grade below B- (2.750) will count toward the degree. Prerequisite(s): instructor's consent. Pre- or corequisite(s): CESP 704 and CESP 840.

**CESP 859. Curriculum Based Academic Assessment and Intervention (3).**

Focuses on identifying, implementing, monitoring and evaluating empirically derived academic interventions. The objectives of this course are to (1) increase understanding of scope and sequence of problem identification and (2) monitor and evaluate behavior change in systems. A minimum grade of B- is required to pass course. Prerequisite(s): departmental consent.

**CESP 860. Seminar in Research Problems (1).**

Development and presentation of research proposals. Required of students enrolled in thesis programs.

**CESP 862. Presentation of Research (1-2).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student, discussed with their advisor, and submitted in thesis manuscript form. Repeatable for a total of 2 credit hours. Prerequisite(s): CESP 860.

**CESP 865. Practicum Play Therapy (3).**

Students conduct and observe a series of play therapy sessions with children. Individual and group supervision is provided. Each student participates in analysis and discussion of therapy intervention strategies, completing session critiques and therapy plans. Prerequisite(s): master's degree in counseling or related field, CESP 841 or equivalent course, or program consent.

**CESP 875. Master's Thesis (2).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for credit. Prerequisite(s): CESP 860.

**CESP 876. Master's Thesis (1-2).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for credit. Prerequisite(s): CESP 860.

**CESP 890. Special Problems in Education (1-3).**

Directed reading and research under the supervision of a graduate instructor. Prerequisite(s): departmental consent.

**CESP 914. Consultation Techniques (3).**

To learn a systematic approach to consultation and to develop relevant strategies to promote, develop, and enhance effective collaboration within the school, with parents, and with the larger community. Specifically, to provide behavior-analytic services in collaboration with others who support and/or provide services to the student, practice within limits of professional competence, and effectively implement behavior change in systems. A minimum grade of B- is required to pass course. Prerequisite(s): graduate standing and departmental consent.

**CESP 934. Personality Assessment (3).**

Focuses on theory and interpretation of instruments representing three major approaches to personality assessment: projective techniques, behavioral techniques, and personality inventories. Includes alternative personality assessment approaches and reviews of personality theory and psychopathology. Includes supervised experience. Prerequisite(s): CESP 811 or 822, 855 (school psychology students only), postmaster's standing or last 6 hours of master's program and instructor's consent.

**CESP 946. Practicum in School Psychology (2-6).**

Supervised practice in providing school psychological services to children in school, clinical or community agency settings. Requires at least 300 hours applied experience per 3 hours of credit. Repeatable for a total of 6 hours. Prerequisite(s): departmental consent.

**CESP 947. School Counseling Postdegree Licensure Internship (2).**

For employed graduated school counseling students who are in direct entry initial licensure status, also known as parallel pathways students. Direct entry or parallel pathways students do not hold a KSDE teaching license and must complete additional requirements to be eligible for school counseling licensure in Kansas. A student in this category completes two consecutive semesters of this counseling postdegree internship while employed as a school counselor in Kansas in order to be eligible to receive licensure as a professional school counselor

by the Kansas State Department of Education (KSDE). Repeatable for credit up to 6 credit hours. Prerequisite(s): completion of a master's degree in counseling and passing score on the PRAXIS exam for school counseling licensure.

**CESP 949. Counseling Internship (3).**

A minimum of 600 clock hours of supervised counseling experiences, including 240 hours of direct service with clients. Clinical setting must be approved and appropriate to the student's emphasis. The semester prior to enrollment, the student must complete the internship application process. Repeatable for credit. Prerequisite(s): admission to candidacy. Pre- or corequisite(s): CESP 803, 821, 824, 825, and CESP 856.

**CESP 949A. School Counseling Internship I (3).**

One-semester course requiring a total of 300 hours in the practice of professional school counseling under clinical supervision. Of the 300 hours, a minimum of 120 hours must be direct counseling service. The student should consider selecting an internship site that offers opportunities to engage in both individual counseling and group work. Clinical settings must be approved and appropriate to the student's emphasis. The semester prior to enrollment, the student must complete the internship application process. Grade assigned will be either "S" Satisfactory (pass) or "U" Unsatisfactory (fail). Prerequisite(s): admission to candidacy, CESP 803; CESP 824, 856 (both with a minimum course grade of B). Pre- or corequisite(s): CESP 821; CESP 825 (with minimum passing grade of B).

**CESP 949B. School Counseling Internship II (3).**

This one-semester course requires a total of 300 hours in the practice of professional school counseling under clinical supervision. Of the 300 hours, a minimum of 120 hours must be direct counseling service. Students should consider selecting internship sites that offer opportunities to engage in both individual counseling and group work. Clinical settings must be approved and appropriate to the student's emphasis. The semester prior to enrollment, the student must complete the internship application process. Grade assigned will be either "S" Satisfactory (pass) or "U" Unsatisfactory (fail). Prerequisite(s): admission to candidacy, CESP 949A with a grade of "S" Satisfactory.

**CESP 949C. School Counseling Internship (6).**

Requires a total of 600 hours in the practice of professional school counseling under clinical supervision. Of the 600 hours, a minimum of 240 hours must be direct counseling service. The student should consider selecting an internship site that offers opportunities to engage in both individual counseling and group work. Clinical settings must be approved and appropriate to the student's emphasis. The semester prior to enrollment, the student must complete the internship application process. Grade assigned will be either "S" Satisfactory (pass) or "U" Unsatisfactory (fail). Prerequisite(s): admission to candidacy, CESP 803; CESP 824, 856 (both with a minimum course grade of B). Pre- or corequisite(s): CESP 821; CESP 825 (with minimum passing grade of B).

**CESP 977. Internship in School Psychology (1-6).**

Supervised experience as a school psychologist in a school or agency setting. Requires at least 600 hours of applied experience. Repeatable for a total of 4 hours. Prerequisite(s): CESP 946 and departmental consent.

## CHEM - Chemistry

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**CHEM 514. Inorganic Chemistry (3).**

*General education math and natural sciences course*. Basic inorganic chemistry emphasizing molecular symmetry and structure, fundamental

bonding concepts, ionic interactions, periodicity of the elements, systematics of the chemistry of the elements, acid-base chemistry and nonaqueous solvents, classical coordination chemistry and introductory bioinorganic chemistry. Prerequisite(s): CHEM 212 with a grade higher than C-. CHEM 531 strongly suggested but not required.

**CHEM 523. Analytical Chemistry (4).**

2 Classroom hours; 6 Lab hours. Lab fee. *General education math and natural sciences course.* Evaluation of data, theory and application of gravimetric analysis and precipitation, neutralization and oxidation-reduction volumetric analysis. Prerequisite(s): CHEM 212 with a grade higher than C-. Corequisite(s): CHEM 523L.

**CHEM 524. Instrumental Methods of Chemical Analysis (4).**

2 Classroom hours; 6 Lab hours. Lab fee. Introduces spectroscopic techniques (UV-Visible atomic absorption, molecular absorption, infrared, mass spectrometry and NMR), electrochemical techniques (potentiometry, voltammetry and coulometry) and separation techniques (gas chromatography and HPLC). Applications of computer and automated methods of analysis also covered. Prerequisite(s): CHEM 531; CHEM 532 strongly recommended but not required. Corequisite(s): CHEM 524L.

**CHEM 531. Organic Chemistry I (5).**

3 Classroom hours; 6 Lab hours. Lab fee. *General education math and natural sciences course.* Introduces the study of carbon compounds emphasizing reaction mechanisms, stereochemistry and spectrographic analysis. Credit is not allowed for both CHEM 531 and 535. Prerequisite(s): CHEM 212 with a grade higher than C-. Corequisite(s): CHEM 531L.

**CHEM 532. Organic Chemistry II (5).**

3 Classroom hours; 6 Lab hours. Lab fee. Continuation of CHEM 531 emphasizing the structure and reactions of principal functional groups and compounds of biological interest. Credit is not allowed for both CHEM 532 and 536. Prerequisite(s): CHEM 531 with a grade higher than C-. Corequisite(s): CHEM 532L.

**CHEM 533. Elementary Organic Chemistry (3).**

One-semester survey of organic chemistry, examining various classes of organic compounds, organic reactions and reaction mechanisms. Establishes an understanding of the relationship between structure and reactivity, with particular emphasis on the importance of organic chemistry to the health sciences and biomedical engineering. Credit is not allowed for both CHEM 533 and 531. Course does not meet the needs of chemistry majors or premed students. Prerequisite(s): CHEM 212 with a grade higher than C-.

**CHEM 535. Organic Chemistry I (3).**

Introduces the study of carbon compounds emphasizing reaction mechanisms, stereochemistry and spectrographic analysis. This course does not include a lab, is open only to biomedical engineering majors and does not meet the needs of chemistry majors or premed students. Credit is not allowed for both CHEM 535 and 531. Prerequisite(s): must be a biomedical engineering major and have completed CHEM 212 with a grade higher than C-.

**CHEM 536. Organic Chemistry II (3).**

Continuation of CHEM 535 emphasizing the structure and reactions of principal functional groups and compounds of biological interest. Course does not include a lab, is open only to biomedical engineering majors and does not meet the needs of chemistry majors or premed students. Credit is not allowed for both CHEM 536 and 532. Prerequisite(s): must be a biomedical engineering major and have completed CHEM 531 or 535 with a grade higher than C-.

**CHEM 545. Physical Chemistry I (3).**

*General education math and natural sciences course.* Introduces fundamentals of thermodynamics with the goal of understanding the driving forces behind chemical and physical changes and equilibria. Covers the laws of thermodynamics and explores concepts involving work, heat and simple mechanical processes. Introduces Helmholtz and Gibbs energy as thermodynamic indicators of spontaneity/equilibria. Applies these concepts to the study of phase changes, chemical equilibria, ideal and non-ideal solutions, electrolytes and chemical kinetics. Prerequisite(s): CHEM 212 with a grade higher than C-, one year of college physics, MATH 344 or its equivalent.

**CHEM 546. Physical Chemistry II (3).**

Covers elementary quantum mechanics and its applications to chemistry. Begins with a historical comparison between classical and quantum mechanics, then builds from the postulates of quantum mechanics to explore the Schrödinger equation and its use in solving problems involving particles, rotating bodies and vibrations. Special emphasis on spectroscopy and approximation methods relevant to chemistry. Prerequisite(s): CHEM 212 with a grade higher than C-, one year of college physics, and MATH 344 or its equivalent.

**CHEM 547. Physical Chemistry Lab (2).**

6 Lab hours. Lab fee. Laboratory experiments and exercises that reinforce physical chemistry concepts of thermodynamics, equilibrium, spectroscopy and error analysis. Students gain practical, hands-on experience with computerized data acquisition and learn computational techniques for data reduction and analysis. For undergraduate credit only. Pre- or corequisite(s): CHEM 545, 546.

**CHEM 605. Medicinal Chemistry (3).**

For students interested in chemistry related to the design, development and mode of action of drugs. Describes those organic substances used as medicinal agents and explains the mode of action and chemical reactions of drugs in the body; illustrates the importance and relevance of chemical reactions as a basis of pharmacological activity, drug toxicity, allergic reactions, carcinogenicity, etc.; and brings about a better understanding of drugs. Includes transport, basic receptor theory, metabolic transformation of drugs, discussion of physical and chemical properties in relation to biological activity, drug design, structure-activity relationships and discussion of a select number of organic medicinal agents. Prerequisite(s): CHEM 532 or equivalent; a semester of biochemistry (CHEM 661 or 662) and a year of biology are strongly recommended.

**CHEM 615. Advanced Inorganic Chemistry (3).**

Includes modern bonding theories, structure and spectra of inorganic compounds, coordination and organometallic chemistry, boranes, inorganic ring systems and polymers, inorganic environmental chemistry, mechanisms of inorganic reactions and solid state chemistry. Prerequisite(s): CHEM 514. Pre- or corequisite(s): CHEM 546.

**CHEM 616. Inorganic Chemistry Lab (2).**

6 Lab hours. Lab fee. Experimental methods of inorganic chemistry. An introduction to the synthetic and analytical techniques that are employed in modern inorganic chemistry. For undergraduate credit only. Pre- or corequisite(s): CHEM 615.

**CHEM 661. Principles of Biochemistry (3).**

*General education math and natural sciences course.* Survey course for chemistry majors including chemistry/business majors and students in life sciences. Not recommended for the BS in chemistry-premedicine or biochemistry field majors for whom CHEM 662 and 663 are required. Introduces thermodynamics and biological oxidation-reduction reactions; structure, metabolism and synthesis of proteins, carbohydrates, lipids and nucleic acids; enzyme kinetics, photosynthesis

and transfer of genetic information. Prerequisite(s): CHEM 532, 533, or 536. Credit is not granted for both CHEM 661 and 662.

**CHEM 662. Biochemistry I (3).**

Study of major constituents of the cell: protein, carbohydrate, glycoprotein, lipid, nucleic acid, nucleoprotein, enzyme catalysis, biological oxidations, photosynthesis and introduction to intermediary metabolism. A fundamental background of biology or microbiology is recommended but not essential. Credit is not granted for both CHEM 661 and 662. Prerequisite(s): CHEM 532 or equivalent. Pre- or corequisite(s): CHEM 523 or equivalent.

**CHEM 663. Biochemistry II (3).**

Studies metabolism and control of carbohydrates, lipids, phosphoglycerides, spingolipids, sterols, amino acids and proteins; synthesis of porphyrins, amides and polyamines; synthesis and metabolism of purines, pyrimidines and nucleotides; synthesis and structure of DNAs, RNAs and proteins; organization and functioning of genes; evolution of proteins and nucleic acids, hereditary disorders of metabolism, biochemistry of endocrine glands, major nutrients and vitamins, body fluids and generalized tissues. A fundamental background of biology or microbiology is recommended but not essential. Prerequisite(s): CHEM 662 with a grade higher than C-.

**CHEM 664. Biochemistry Laboratory (3).**

6 Lab hours. Lab fee. Practical training in biochemical procedures and literature searching; experiments include isolation, characterization and assay of biomolecules and use of centrifugation, chromatography, electrophoresis, spectrophotometry, enzyme kinetics and molecular cloning techniques. For undergraduate credit only. Prerequisite(s): CHEM 532. Pre- or corequisite(s): CHEM 662 or 663.

**CHEM 666. Special Topics in Biochemistry (3).**

Discusses a small number of current problems in biochemistry in depth. Requires reading published research in the field. (Offered fall semester in even-numbered years.) Prerequisite(s): BIOL 211, CHEM 662, 663.

**CHEM 669. Research In Biochemistry (2).**

Cross-listed as BIOL 669. Students in the biochemistry field major participate in a biochemistry research project under the direction of a faculty member. Requires a written report summarizing the results. For undergraduate credit only. Repeatable once for credit. Prerequisite(s): BIOL 420, and CHEM 662 or 663, and CHEM 664 and instructor's consent.

**CHEM 690. Independent Study and Research (1-3).**

Studies performed must be directed by a faculty member in the department of chemistry. For undergraduate credit only. Repeatable for credit. A maximum of 3 credit hours may be counted toward graduation. Prerequisite(s): departmental consent.

**CHEM 700. Chemistry Seminar (1).**

Students give seminars on either papers recently published in the literature or on their own research. Repeatable for credit.

**CHEM 701. Chemistry Colloquium (1).**

Speakers for the colloquium consist of outstanding chemists from other institutions and faculty. Repeatable for credit.

**CHEM 709. Special Topics in Chemistry (2-3).**

Discusses topics of a special significance and interest to faculty and students. Offerings announced in advance. Repeatable for credit.

**CHEM 715. Advanced Spectroscopy (3).**

Introduces <sup>1</sup>H and <sup>13</sup>C NMR spectroscopy including basic concepts such as integration, chemical shifts, diamagnetic shielding, magnetic anisotropy, spin-spin coupling (first and second-order), coupling constants, proton decoupled <sup>13</sup>C NMR interpretation of <sup>1</sup>H and <sup>13</sup>C NMR spectra. More advanced topics include NOE and protein structural mapping, and multidimensional techniques such as COSY,

DEPT, INEPT, molecular motion by NMR, coupling to I>O metal centers, including those with <100 percent natural abundance, virtual coupling in metal complexes, NMR of paramagnetic systems and use of paramagnetic shift reagents. Introduces mass spectroscopy including instrumentation-magnetic sector, quadrupole, ion trap, MS-MS; sample preparation and interfaces-GC-MS, LC-MS, electrospray, MALDI; methods of ionization-electron impact, chemical ionization, electrospray, interpretation of mass spectra-basic concepts, fragmentation patterns. Introduces the interpretation of mid-infrared spectroscopy of complex molecules and ionic compounds followed by the synthesis of results from NMR, MS and mid IR spectra to determine structure. Emphasizes the interpretation of results for understanding electronic and molecular properties of chemical compounds related to their symmetry. Prerequisite(s): CHEM 532 or equivalent; or admission to a chemistry graduate program.

**CHEM 717. Advanced Spectroscopy II (3).**

Introduces electronic and vibrational spectroscopy, EPR and magnetic properties of compounds. Studies the electric field interaction of radiation, electronic and vibrational spectroscopy, and the magnetic field interaction of radiation, EPR and magnetism, with molecular systems examining the different changes in state that molecules can undergo. Emphasizes the interpretation of results for understanding electronic and molecular properties of chemical compounds related to their symmetry and structure. Prerequisite(s): CHEM 532, 546, 615, or their equivalents; or admission to a chemistry graduate program.

**CHEM 719. Modern Synthetic Methods (3).**

Introduces modern synthetic methods in chemistry. Detailed investigation of the synthetic chemistry of anions is followed by a detailed survey of functional group interconversions, then oxidation and reduction reactions. Introduces the topic of retrosynthetic analysis. Topics in inorganic synthesis include organometallic bond forming and breaking reactions, ligand synthesis and replacement, solid state synthesis and topics in bioinorganic synthesis. Prerequisite(s): CHEM 532 and 615, or their equivalents; or admission to a chemistry graduate program.

**CHEM 721. Advanced Biochemistry (3).**

Introduces advanced biochemical concepts, processes and techniques. A comprehensive survey of structure and functions of biomolecules including proteins, nucleic acids, lipids, DNA replication and translation. Covers biological membrane and membrane transport. Enzyme mechanisms and kinetics and protein structure/function are discussed in detail. Biochemical, molecular biological, biophysical and chemical techniques that are commonly used in the study of biochemical processes are introduced and discussed. Prerequisite(s): CHEM 661 or 663 or their equivalents; or admission to a chemistry graduate program.

**CHEM 722. Advanced Physical Chemistry (3).**

In-depth overview of the fundamentals of thermodynamics, kinetics, quantum mechanics and statistical mechanics as they apply to chemistry. Special emphasis is placed on solution thermodynamics, kinetics of coupled reactions, statistical mechanics of macromolecules and quantum mechanics as it applies to spectroscopy. Prerequisite(s): CHEM 545 and 546, or their equivalents; or admission to a chemistry graduate program.

**CHEM 734. Instrumental Methods for Research (3).**

Designed to prepare graduate students or other researchers to perform spectroscopy experiments relevant to their research. The identity of organic compounds can be determined by the information provided by several types of spectra: mass, infrared, nuclear magnetic resonance, fluorescence and ultraviolet. Students learn to operate such instruments as the Varian 2200 GC/MS mass spectrometer, the ThermoNicolet Avatar FTIR spectrophotometer, the Varian Mercury 300 and Inova 400

NMR spectrometers, the Fluorolog fluorescence spectrophotometer and the Hitachi U-2010 and Varian Cary 100 UV-Vis spectrophotometers in the department's NMR and analytical facilities. Focuses on technique and not the interpretation of spectra. On successful completion of this course, students are authorized to use departmental instruments. Prerequisite(s): CHEM 524 or equivalent, or departmental consent, or admission to a chemistry graduate program.

**CHEM 809. Special Studies in Chemistry (2-3).**

Systematic study in selected areas of chemistry. Repeatable for credit. Course content differs from one offering to the next.

**CHEM 809X. Protein Folding and Human Disease (3).**

Biochemical understanding of proteins and nucleic acids is fueling the revolution in medicine, demonstrating how the basic principles of biochemical structure govern molecular regulation in normal human health or malfunction in disease. This course introduces graduate students to the relevant concepts of protein structure and function, protein folding, and diseases associated with protein misfolding and/or dysfunction. Special attention is focused on protein misfolding and aggregation as this has been associated with over 40 human diseases. This course includes lectures, directed readings and student presentations to cover seminal and current papers on the biochemistry of conformational diseases including topics such as protein folding and misfolding, protein degradation pathways, effects of protein aggregation on cell function, model systems to study protein aggregation, and novel approaches to prevent protein aggregation. Prerequisite(s): one year of undergraduate organic chemistry and at least one semester of biochemistry.

**CHEM 815. Bioinorganic Chemistry (3).**

Studies the role of inorganic chemistry in biological systems. Includes electron transport, biological catalysis mediated by metal ions, metal storage and transport, ion transport, and the role of transition metals in metabolism. Prerequisite(s): CHEM 615, 663 or equivalents.

**CHEM 835. Bio-organic Chemistry (3).**

Includes the chemistry of amino acids and peptides, enzyme structure and function, and inhibitor design. Prerequisite(s): CHEM 532, 661, or CHEM 663 or equivalent.

**CHEM 890. Research in Chemistry (1-12).**

Research for the student planning to receive an MS. Research is directed by a faculty member. Repeatable for credit.

**CHEM 990. Research in Chemistry (1-11).**

Research for the student planning to receive the PhD. Research is directed by a faculty member. Repeatable for credit.

## CI - Curriculum and Instruction

### School of Education

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**CI 502. Math for Exceptionalities (3).**

Teacher education candidates explore and evaluate instructional theories, principles and research-based instructional strategies appropriate for mathematics for learners with exceptionalities. They also become familiar with formal and informal diagnostic tools to identify students experiencing difficulties learning mathematical concepts and gain skill implementing research-based intervention practices for these students. In addition, teacher education candidates explore the interface of technology and effective mathematics instruction. Through assignments designed to provide practical application of content, they explore resources, technology, research and practices that facilitate specific skill development in students. They also

learn about strategies to support enjoyment of mathematics for students with diverse and challenging learning needs. For undergraduate students only. *Course includes diversity content*. Prerequisite(s): admission to the ECU/Elementary Apprentice Program.

**CI 503. Mathematics for High School Teachers (3).**

Capstone course in secondary mathematics education designed to prepare secondary mathematics education majors for a career in high school teaching by examining secondary school mathematics from an advanced, mathematical point of view. Topics covered are rooted in core secondary curriculum including number and operations, algebra, geometry, functions and statistics. Students draw connections between ideas taught separately in different mathematics courses as they explore familiar high school level mathematics problems. Open to education majors only. *Course includes diversity content*. Prerequisite(s): MATH 321, 344, 415, 511, 513, 531, 615, 621, STAT 460 (with a grade point of 2.000 or better, or instructor's consent).

**CI 504. Special Education Law (3).**

Specific local, state, and federal laws governing special education programs and services are discussed in detail. The impact, application of the laws, and strategies for complying with them in the PreK-6 setting are major areas of focus. For undergraduate credit only. *Course includes diversity content*. Prerequisite(s): admission to ECU/Elementary Apprentice Program.

**CI 505. Science Technology and Society (1).**

Investigates the relationships between science and technology, and the effects of both on our past and present society/culture.

**CI 506. Introduction to the Education Profession for Special Educators (2).**

Introduces the education profession and situates within it the roles and responsibilities of the special educator. Discusses the historical, philosophical, sociological, governance, organizational, legal and curricular foundations of education, including the integration of topics related to the evolution of the special education profession. Students learn how to carry out the important roles and responsibilities of the special educator, as well as gain a basic understanding of the various educational settings in which they may be employed. Prerequisite(s): graduate standing.

**CI 519. Mathematical Investigations (3).**

Based on the NCTM principles and standards for school mathematics focusing on process standards: problem solving, reasoning and proof, communication, connections and multiple representations. Students gain an active understanding of problem posing and problem solving in mathematics, as well as a familiarity with heuristics of problem solving. Integrates appropriate educational technology tools and instructional strategies for students with special needs including English Language Learners (ELL). Prerequisite(s): MATH 501 with a grade of 2.000 or better, or instructor's consent.

**CI 520. Physical Science in the Elementary Classroom (3).**

Students discover how the world around them works by doing a series of hands-on activities which allows them to apply the investigative nature of science to an elementary classroom setting. Intended only for elementary teacher candidates who are seeking to better understand the critical connections between the discovery and understanding of science concepts and the inquiry approach used in elementary science instruction. For undergraduate credit only. Prerequisite(s): admitted to teacher education program.

**CI 556. Instructional Planning and Classroom Management (2).**

Provides students with an opportunity to demonstrate their understanding of foundational skills related to planning instruction and supporting student behavior prior to entering the field as special educators for students with mild to moderate disabilities. Students

learn basic instructional planning techniques, accommodations and modifications, how to develop individualized educational programs, and strategies to effectively support classroom and individual student behavior. In addition, students learn how to access resources to further support the use of evidence-based and best practices within specific core content areas. Prerequisite(s): graduate standing.

**CI 557. Integrated Seminar and Mentoring (1).**

Provides students with a network of cohort and instructor support where they share, discuss and reflect upon their teaching practices to assist in assuming the responsibilities of their position, as well as their continued professional growth. Each course is individualized to focus on the developmental needs of candidates. Topics are chosen by students and the instructor focusing on the completion of an individualized portfolio of competencies that are aligned to state and national professional teaching standards. Repeatable up to 4 credit hours. Prerequisite(s): graduate standing.

**CI 602. Social Emotional Learning in the School Community (2).**

Teacher education candidates understand the purpose of the social, emotional and character development standards and how these standards provide classrooms and schools with a framework for integrating social-emotional learning (SEL) with character development so that students learn, practice and model essential personal life habits that contribute to academic, vocational and personal success. For undergraduate credit only. *Course includes diversity content.* Prerequisite(s): admission to the ECU/Elementary Apprentice Program.

**CI 603. Foundations of Early Childhood Unified (2).**

Introduction to working with young children (including those developing normally, those at risk due to environmental and biological issues, and those with special needs), their families, and professionals in community schools, agencies and programs. Emphasizes professional development, positive dispositions, early childhood learning environments and early childhood professional standards. Examines the ECU professions, characteristics of good teaching, the nature of teacher education and basic historical and philosophical foundations of ECU education. Prerequisite(s): CI 270.

**CI 604. ECU Assessment and Methods: Infants, Toddlers and Preschool (B-PreK) (3).**

Provides knowledge, skills and dispositions for candidates regarding developmental principles, evaluation/assessment, and the development of services, supports and accommodations for infants/toddlers (birth through age 2) and preschool (3-4 years old). Includes competencies within both the early childhood and early childhood special education fields. For undergraduate credit only. *Course includes diversity content.* Prerequisite(s): admission to ECU/Elementary Apprentice Program.

**CI 605. Internship I (2).**

In the licensure program, this internship replaces the required student teaching assignment for the purposes of licensure. Students in the ECU/Elementary Apprentice Program complete at least 15 hours per week under the supervision of a classroom teacher. For undergraduate credit only. *Course includes diversity content.* Prerequisite(s): admission to the ECU/Elementary Apprentice Program.

**CI 606. Internship II (2).**

In the licensure program, this internship replaces the required student teaching assignment for the purposes of licensure. Students in the ECU/Elementary Apprentice Program complete at least 15 hours per week under the supervision of a classroom teacher. For undergraduate credit only. *Course includes diversity content.* Prerequisite(s): admission to the ECU/Elementary Apprentice Program.

**CI 607. Internship III (2).**

In the licensure program, this internship replaces the required student teaching assignment for the purposes of licensure. Students in the ECU/

Elementary Apprentice Program complete at least 15 hours per week under the supervision of a classroom teacher. For undergraduate credit only. Repeatable for a total of 10 credit hours. *Course includes diversity content.* Prerequisite(s): admission to the ECU/Elementary Apprentice Program.

**CI 608. Internship IV (2).**

In the licensure program, this internship replaces the required student teaching assignment for the purposes of licensure. Students in the ECU/Elementary Apprentice Program complete at least 15 hours per week under the supervision of a classroom teacher. For undergraduate credit only. *Course includes diversity content.* Prerequisite(s): admission to the ECU/Elementary Apprentice Program.

**CI 614. ECU Assessment and Methods: Infants, Toddlers and Families (3).**

Provides knowledge, skills and dispositions for candidates regarding developmental principles, evaluation/assessment, and the development of services, supports and accommodations for infants/toddlers (birth through age 2) and their families. Includes competencies within both the early childhood and early childhood special education fields. Prerequisite(s): CI 327 for undergraduates and CI 603 for graduates. Corequisite(s): CI 614I (for undergraduate students only).

**CI 614I. ECU Preteaching Internship: Infant Toddler (2).**

Candidates participate in a preteaching internship experience in natural settings (within homes and the community) that include young children from birth through age 2 and their families. Candidates work with a cooperating teacher, other professionals and a university supervisor to plan, implement and assess services and supports for young children and their families. Prerequisite(s): CI 327. Corequisite(s): CI 614 (for undergraduate students only).

**CI 615. Learning and Reading Strategies (2-3).**

Provides an understanding of the development of learning and reading strategies and explores instructional approaches for guiding secondary students in those strategies and their use in content areas.

**CI 616. Literature for Adolescents (3).**

Expands student knowledge of strategies for helping culturally, developmentally and linguistically diverse students comprehend and construct meaning from texts using appropriate education technology and face-to-face instructional techniques. Includes extensive reading of classic and contemporary young adult literature in all genres. Prerequisite(s): acceptance into teacher education. Currently and previously certified teachers meet prerequisites.

**CI 617. ECU Assessment and Methods: Preschool (3).**

Provides knowledge, skills and dispositions for teacher candidates regarding development and learning at the preschool level (ages 3-5). Candidates learn to link theory and evidence-based practices to the preparation of the learning environment, and to the curriculum and instructional methods that are appropriate for all children. Includes methods of screening and evaluation, adaptations and accommodations, and interventions to meet individual child needs, including those with exceptionalities. Prerequisite(s): CI 327 for undergraduates and CI 603 for graduates. Corequisite(s): CI 617P (undergraduates).

**CI 617P. ECU Preteaching Internship: Preschool (2).**

Candidates participate in preteaching internship experiences in preschool settings that include young children from ages 3 through 5 (both with and without exceptionalities) and their families. Students work with a cooperating teacher(s) and university supervisor to screen, evaluate, assess, plan curriculum, deliver instruction, adapt for individual child needs, and implement special education services and support for the education of young children. Prerequisite(s): CI 327. Corequisite(s): CI 617 (for undergraduate students only).

**CI 647A. Teaching Internship: ECU K-3 (6).**

Candidates spend eight weeks in professional settings (K-3 level) working with a cooperating teacher and university supervisor. The candidate and cooperating teacher, with the approval of the university supervisor, devise a plan for the intern to assume full responsibility for the program/classroom for a designated period of time during the eight-week period. For undergraduate credit only. Prerequisite(s): grade of B- or better in the following courses: CI 402E, CI 402J, CI 402U, CI 402M, CI 402S, CI 411A, CI 411B, CI 614, CI 614I, CI 617, CI 617P, CI 703 and CI 796; successful completion of all core I, II and III courses and assessments; and acceptance into clinical practice. Corequisite(s): CI 446, CI 647B.

**CI 647B. Teaching Internship: ECU Birth-PreK (6).**

Candidates spend eight weeks in professional settings (infant/toddler level or preschool level) working with a cooperating teacher and university supervisor. The candidate and cooperating teacher, with the approval of the university supervisor, devise a plan for the intern to assume full responsibility for the program/classroom for a designated period of time during the semester. For undergraduate credit only. Prerequisite(s): CI 614\*, CI 614I\*, CI 703\*, CI 796 and either CI 327 or CI 603; successful completion of all Core I (CESP 334, CI 311\*, CI 320\*, CI 321\*, CI 323, CI 317\*, CI 519 (2.000 or better)) and Core II (CESP 433, CI 402E\*, CI 402J\*, CI 411A\*, HPS 425\*, CI 324, CI 402U\*, CI 402M\*, CI 402S\*, CI 411B\*, CI 617\*, CI 617P\*) courses and assessments and acceptance into clinical practice (\*Course requires a grade of B- or better). Corequisite(s): CI 446, CI 647A.

**CI 654M. Instructional Methods in Middle Level/Secondary Education - Mathematics (1-3).**

Acquaints current or potential educators with the concepts and skills necessary to meet the needs of students in middle level and/or secondary education. Focuses on content specific pedagogy as it relates to classroom instruction, management and assessment or adaptations. Prerequisite(s): teaching license or admission to the Master of Arts in Teaching.

**CI 654S. Instructional Methods in Middle Level/Secondary Education - Science (1-3).**

Acquaints current or potential educators with the concepts and skills necessary to meet the needs of students in middle level and/or secondary education. Focuses on content specific pedagogy as it relates to classroom instruction, management and assessment or adaptations. Prerequisite(s): teaching license or admission to the Master of Arts in Teaching.

**CI 701. Foundations of Education (2).**

Students survey the various foundations areas, including philosophical, historical, social and comparative. This course is prerequisite to subsequent foundations courses. Prerequisite(s): graduate standing.

**CI 702. Introduction to Exceptional Children (2).**

Surveys the characteristics of exceptional learners, including the handicapped and the gifted. Presents service delivery models and current practices. Fulfills certification requirements for teachers and serves as an introductory course in exceptionality for special education majors, administrators and school psychologists. Prerequisite(s): bachelor's degree or departmental consent.

**CI 703. Assessments and Methods: K-3 (3).**

Provides knowledge, skills and dispositions for candidates working with families and young children from kindergarten through grade 3. Covers theory, methodology, screening, evaluation, assessment and instructional practices, including adaptations/modifications/assistive technology of general education curriculum/instruction for young children both with and without delays/diagnosed disabilities. Prerequisite(s): CI 327 for undergraduates and CI 603 for graduates,

and at least one of the following - CI 402J, 402S, 402L or 402M; or hold an elementary teaching license.

**CI 704. Assessment and Methods K-1 (3).**

Provides knowledge, skills and dispositions for candidates working with families and young children from kindergarten through first grade. Covers theory, methodology, screening, evaluation, assessment and instructional practices, including adaptations and modifications for all young children, including English language learners and those with and without delays/diagnosed disabilities. Prerequisite(s): CI 603. Corequisite(s): CI 748.

**CI 705. Knowledge and Beliefs About Reading (3).**

Helps students understand the theories of reading development, individual student differences, the nature of reading difficulties and principles of assessment. Includes the standards developed by the International Reading Association concerning knowledge and beliefs about reading as the learning outcome. Prerequisite(s): graduate standing.

**CI 707. Adolescent Development (2).**

Examines adolescent development through various developmental lenses and applies that knowledge to practice and research. Provides a practical understanding of the developmental trajectories of adolescent thinking and reasoning and prepares educators working with adolescents for the unique aspects they bring to the educational setting. Beginning with contemporary and global conceptualizations of adolescence, the course builds toward a more complex understanding of the developing self and the synergy among the self, significant relationships (including family, peers) and context (i.e., school, work and media). Prerequisite(s): admission to the Transition to Teaching program.

**CI 708. Current Topics in Curriculum (1-3).**

Addresses a broad range of topical issues in curriculum development and implementation. A current issue is covered under this course number, an umbrella number for a variety of topics/innovations in curriculum. Repeatable for credit.

**CI 709. Current Topics in Instruction (1-3).**

Addresses a broad range of topical issues in current practices for effective instruction. A current issue is covered under this course number, an umbrella number for a variety of topics/innovations in instructional practices. Repeatable for credit.

**CI 709AI. AP Institute Special Topics (3).**

Only available to those registered for the WSU Advanced Placement Summer Institute as attendance at the APSI is a course requirement. For information on the APSI, contact Dr. Jim Granada, ASPI Director, at jim.granada@wichita.edu.

**CI 710B. Differentiated Instruction for Active Engagement (2).**

Intended as part of the core for a Master of Arts in Teaching. Focuses on the elements of differentiation, differentiated instruction based on student need, and lesson plan design that reflects planned differentiation. Students explore best practices, strategies and practical applications of differentiation in diverse classroom contexts.

**CI 711. Multicultural Education (3).**

Emphasizes students understanding multiple perspectives in a global society and developing multiple modality, culturally aware curriculum experiences. Provides disciplined inquiry and critical experience to become more responsive to the human condition, cultural integrity, and cultural pluralism in society (NCATE, 1982, p. 14). Emphasizes diversity issues in education and the development of a knowledge base to support culturally responsible pedagogy. Prerequisite(s): graduate standing or departmental consent.

**CI 714. Reading Instruction and Assessment (3).**

Covers literacy assessment strategies and instructional procedures, curriculum and instruction alternatives, and program planning for the literacy development of students, including those with reading and/or writing disabilities (e.g., dyslexia). The course focuses on how, as a teacher, one participates in tiered support systems and facilitates/provides appropriately focused and intensive literacy instruction. A focus on knowledge of diverse reading profiles, including dyslexia, assessment (diagnostic, progress monitoring, screening and curriculum-based measures), and structured literacy instruction, focusing on phonological and phonemic awareness, phonics and word recognition, oral reading fluency, vocabulary, listening and reading comprehension, and writing. Course expectations for undergraduate vs. graduate students are differentiated through assessment measures such as exams, written assignments, learning tasks, etc. Graduate expectations include advanced learning through additional, more complex readings, course facilitation or experiential activities. Prerequisite(s): CI 705 or departmental consent.

**CI 715. Concepts and Principles of Behavior Analysis (3).**

Cross-listed as CLES 715. Covers the fundamental concepts and principles of applied behavior analysis. Everyday behavior is examined as a part of the natural world, and behavior change is explained by behavioral principles derived from scientific research. Students have opportunities to demonstrate their understanding of the procedures that derive from behavioral principles and get some practice in implementing those procedures. School psychology students: no grade below B- (2.750) will count toward the degree.

**CI 721. Fundamental Elements in Behavior Change and Specific Behavior Change Procedures (3).**

Cross-listed as CLES 721. Introduces fundamental elements of behavior change and specific behavior change procedures. The objectives of this course are (1) to increase student understanding of behaviors change and (2) for students to demonstrate their ability to apply behavior change techniques. Prerequisite(s): CLES 715 or CI 715.

**CI 723. Single Subject Design (3).**

Cross-listed as CLES 723. Introductory level course concentrating on single subject data designs, visual inspection and inference of data, and statistical analysis for educational and behavioral interventions and data collection processes.

**CI 724. Introduction to Teaching Strategies for Students With Mild/Moderate Disabilities (3).**

Examines introductory assessments, curriculum and instruction related to students with mild and moderate learning needs. Includes competencies for (1) developing individual educational plans, (2) assessment for culturally responsive models of instructional planning, (3) planning and delivering research-validated individualized instruction, (4) monitoring and basing instructional decisions on performance data, (5) managing safe and conducive learning environments, and (6) strategies for working with students with adaptive learning needs in general and special education environments.

**CI 733. Assessments and Methods: Grades 2-3 (3).**

Provides knowledge, skills and dispositions for candidates working with families and young children in 2nd and 3rd grade. Covers theory, methodology, screening, evaluation, assessment and instructional practices, including adaptations and modifications for all young children, including English language learners and those with and without delays/diagnosed disabilities. Prerequisite(s): CI 603, 704. Corequisite(s): CI 749.

**CI 734. Literature-Based Reading Programs (3).**

Students examine specific methods for developing a literature program with children (preschool-elementary years) emphasizing extending

literature and media through the reading environment, language arts, the arts and creative expression. Prerequisite(s): CI 705, graduate standing.

**CI 736. Organizing a Reading Program (3).**

Helps students communicate information about reading to various groups, develop literacy curricula, participate in or lead professional development programs, participate in or conduct research, collaborate or supervise other literacy practitioners, communicate assessment results, and engage in professional activities. Prerequisite(s): CI 705, 714.

**CI 737. Methods/Assessment: Gifted (3).**

Explores a variety of assessment instruments, both teacher-made and standardized, to determine a gifted student's cognitive functioning level and educational needs. Examines strategies and techniques for planning qualitatively differentiated curriculum to meet the academic needs of the gifted learner.

**CI 742. Introduction to Teaching Strategies for Students with Severe/Multiple Disabilities (3).**

Examines introductory assessments, curriculum and instruction related to students with severe and multiple disabilities. Includes competencies for (1) developing individual educational plans, (2) assessment for culturally responsive models of instructional planning, (3) planning and delivering research-validated individualized instruction, (4) monitoring and basing instructional decisions on performance data, (5) managing safe and conducive learning environments, and (6) strategies for working with students with moderate to severe needs in general and special education environments.

**CI 743. Transition to Teaching or Residency Internship I (1).**

In the transition to teaching or residency licensure program, this internship replaces the required student teaching assignment for the purposes of licensure. Students in the transition to teaching program teach half time or more with a restricted license. Students in the residency program teach at least 20 hours per week under the supervision of a classroom teacher. The prerequisites/corequisites differ for each program. Prerequisite(s): for the ECU Residency program: admission to the program; for the Transition to Teaching and Middle Level Secondary programs: CI 760A, employment by a school district or agency partnership and completion of program requirements for restricted teacher licensure or residency. Corequisite(s): for the Transition to Teaching and Middle Level Secondary programs: CI 761A.

**CI 744. Transition to Teaching or Residency Internship II (1).**

In the transition to teaching or residency licensure program, this internship replaces the required student teaching assignment for the purposes of licensure. Students in the transition to teaching program teach half time or more with a restricted license. Students in the residency program teach at least 20 hours per week under the supervision of a classroom teacher. The prerequisites/corequisites differ for each program. Prerequisite(s): for the Transition to Teaching and MLS Residency program: CI 743, 761A, employment by a school district or agency partnership and completion of coursework for restricted teacher licensure or MLS residency; for the ECU Residency program: CI 603, 743. Corequisite(s): for the Transition to Teaching and MLS Residency programs: CI 769; for the ECU Residency program: CI 614.

**CI 747L. Practicum: ESL/Bilingual Education (2-3).**

Provides full-time participation in an ESL class supervised by a master teacher and a university professor. Focuses on the application of teaching methods for ESL/bilingual learners, the appropriate use of formal and informal assessment procedures, the development of cross-cultural teaching strategies, and the integration of language with

content-area instruction. Prerequisite(s): CI 321 or 711, CI 774, 775, 776, 777.

**CI 748. Transition to Teaching or Residency Internship III (1-3).**

In the transition to teaching or residency licensure program, this internship replaces the required student teaching assignment for the purposes of licensure. Students in the transition to teaching program teach half time or more with a restricted license. Students in the residency program teach at least 20 hours per week under the supervision of a classroom teacher. The prerequisites/corequisites differ for each program. Prerequisite(s): for the Transition to Teaching program: CI 744, 769, employment by a school district or agency partnership and completion of coursework for restricted teacher licensure or residency; for the ECU Residency program: CI 617, 744. Corequisite(s): CI 704.

**CI 749. Transition to Teaching or Residency Internship IV (1-3).**

In the transition to teaching (T2T) or residency (ECU or middle level secondary) licensure programs, this internship fulfills the required student teaching assignment for the purposes of licensure. Students in the transition to teaching program teach half time or more with a restricted license. Students in the residency (ECU or middle level secondary) programs are full-time interns for the entire semester under the supervision of a classroom teacher. The prerequisites/corequisites differ for each program. Prerequisite(s): for the Transition to Teaching program: CI 748, employment by a school district and completion of coursework for provisional teacher certification; for the Middle Level Secondary Residency program: CI 748; for the ECU Residency program: CI 703, 748. Corequisite(s): for the Transition to Teaching program: CI 849; for the Middle Level Secondary Residency program: CI 849; for the ECU Residency program: CI 733.

**CI 749A. Practicum: High-Incidence Learners (3).**

Provides prospective special education teachers with participation in a class for children or adolescents with high incidence learning needs being served in special education programs. Supervision is provided by a fully-qualified special education teacher and a university faculty member. Emphasizes (1) research-validated teaching methods for students with high incidence learning needs, including planning individual education programs and standards-based education; (2) use of formal-informal psychoeducational assessment devices, curriculum strategies, positive behavior support, behavior management and evaluation of student performance; and (3) reflective analysis of personal performance and its impact on student learning. Prerequisite(s): practicum placement approval.

**CI 749F. Practicum: Low-Incidence Learners (3).**

Provides supervised practical experience in a program setting that serves students who have low incidence disabilities. Candidates work with a cooperating teacher to plan, implement and assess instruction aligned with state and/or district standards for students with low incidence disabilities. Prerequisite(s): practicum placement approval.

**CI 749G. Practicum: Gifted (3).**

Provides prospective special education teachers with participation in an educational setting for children and adolescents needing the gifted curriculum served in special education programs. Supervision is provided by a fully-qualified gifted education teacher and a university faculty member. Emphasizes research-validated teaching methods for students with gifted curriculum needs. Prerequisite(s): practicum placement approval.

**CI 750. Workshops in Education (1-4).**

Workshops on a variety of education topics. Different topics are indicated by a letter following the course number.

**CI 750AP. Introduction to Teaching Concurrent Enrollment Courses: College Algebra (3).**

In this introduction to teaching concurrent enrollment course in high school, the following topics are covered: (1) needs of high school students as learners in a college algebra course, (2) principles of course development: college algebra, (3) college algebra content taught at the high school level: implications, (4) introduction to Blackboard, online learning formats, principles of online learning for college algebra, (5) meeting ADA compliance requirements in college algebra coursework, and (6) meeting state standards for high school mastery.

**CI 750AQ. Introduction to Teaching Concurrent Enrollment Courses: College Chemistry (3).**

In this introduction to teaching concurrent enrollment course in high school, the following topics are covered: (1) needs of high school students as learners in a college chemistry course, (2) principles of course development: college chemistry, (3) college chemistry content taught at the high school level: implications, (4) introduction to Blackboard, online learning formats, principles of online learning for college chemistry, (5) meeting ADA compliance requirements in college chemistry coursework, and (6) meeting state standards for high school mastery.

**CI 750AR. Buck Institute for Education: Project Based Learning (3).**

Workshop provides training for teachers who are involved in the KSDE redesign (Mercury schools) process and are moving to a more project-based approach in their classrooms. Along with project-based teaching (BIE) philosophy, examples, and collaboration time, teachers are expected to prepare a lesson using what they learn from the training.

**CI 750AV. 21st Century Learning Design (1-2).**

Helps current and future educators become fluent in using 21st Century Learning Design Rubrics developed with support of Microsoft. Helps teachers and administrators have a better understanding of what 21st century skills learners should be practicing in courses, provides rubrics to effectively measure teacher/administrator/environment success in providing opportunities for those skills to be practiced and to what degree, and coaching/facilitation of those rubrics into current practice.

**CI 750AW. Google Certified Educator (1-2).**

Helps current and future educators become fluent in using Google Education Suite, leading to a more effective use of time for teachers and a more dynamic and engaging environment for students. Repeatable up to three credit hours.

**CI 750BA. Space Sciences Hands-On Activities and Practices (S2HAP): Implement (1).**

Following the summer workshop featuring the NASA Education resources and NGSS science and engineering practices, middle school science teachers will implement various hands-on activities and projects to demonstrate their effectiveness and confidence in teaching space sciences. The teachers will use this knowledge in their classrooms to increase student interest and achievement in the area of space-sciences. Online mentoring of the teachers will occur over the semester.

**CI 750BB. Purposeful Literacy: Application (3).**

Equips educators with the knowledge necessary to successfully teach students to read, write, and spell. Emphasis is on Universal Design for Learning, focusing on characteristics of struggling readers including those with dyslexia, while sharing a research-based, structured, systematic, and explicit reading methodology for all students. Participants will complete a 3-day session followed by 7 days of application, in which they will observe live lessons, plan lessons, practice teaching methods with students, and receive continuous mentoring as they prepare to implement new practices to their current curriculum.

**CI 750BC. Purposeful Literacy: Information (1).**

Equips educators with the knowledge necessary to successfully teach students to read, write, and spell. Emphasis is on Universal Design for Learning, focusing on characteristics of struggling readers including those with dyslexia, while sharing a research-based, structured, systematic, and explicit reading methodology for all students. Participants of the 3 days will engage in a simulation, student panel discussion, and multi-sensory teaching of reading concepts while learning about reading research.

**CI 750BD. Space Sciences Hands-On Activities and Practices (S2HAP): Engage (2).**

The S2HAP workshop and curriculum is designed to enhance the content knowledge, skills, and experience of teachers, to capture the interest of students, and to channel that interest into related career paths through the demonstration of integrated applications of space-sciences, mathematics, technology, and engineering recommended in the Next Generation Science Standards (NGSS).

**CI 750BE. Teaching Exceptional K-12 Learners (1-2).**

Designed for current K-12 certified staff in USD 259 who aspire to enhance their expertise in working with exceptional learners. Participants are further equipped and provided resources to address curriculum, instructional best practices and behavior management.

**CI 750BF. Increasing Student Engagement through Esports (0.5-4).**

Designed for educators from all subject areas who would like to know more about esports and how it leads to improved learning outcomes within cross-curricular educational settings. Using the Gaming Concepts Curriculum, educators can use the high-interest platform of esports while teaching college and career ready standards as well as social-emotional skills.

**CI 750BM. Restorative Practice: A Healing and Empowering Approach to Education (1).**

Provides opportunities to learn the underlying theories, premises and skills of restorative practices. Provides instruction on the effects of chronic stress and adverse experiences on the developing brain and on the connection between restorative practices, trauma sensitive care, resiliency and hope for healing. Participants have opportunities to engage in hands-on experiences with restorative practice techniques such as affective statements, nonviolent communication and facilitating circles in order to improve their effectiveness in teaching and reaching all age learners, regardless of the setting. Repeatable for credit.

**CI 751. Special Studies in Education (1-3).**

For elementary and secondary school teachers. Repeatable for credit with advisor's consent. Prerequisite(s): teacher certification or departmental consent.

**CI 751AA. Student-Led Conferencing (0.5).**

Parents and teachers become partners with their students when all parties play equal roles in conferencing. Traditional conferencing between only the teacher and parent can limit students from becoming self-advocates for their education. Student-led conferencing encourages students to take responsibility for their learning through analysis and reflection of their work and goal setting. Workshop guides teachers in the rationale and steps for successfully implementing student-led conferences with any age and setting.

**CI 751AB. Enhancing Science Instruction Through STEM Education for the K-8 Classroom (3).**

STEM education incorporates science, technology, engineering and mathematics into the science curriculum. Anticipating a significant increase in the percentage of STEM careers over the next four years, the National Science Foundation and the Federal Government have placed an emphasis on improving STEM education in the K-12

Classroom. Professional learning course participants use the NGSS standards to develop and present STEM activities appropriate for the elementary classroom. Course participants learn the foundations of STEM education as well as engage in hands-on STEM activities. Participants apply the foundations of STEM education and the NGSS standards to develop high quality engaging science lessons. Technology is used as a presentation tool as well as a method to collect and analyze science data and activities. Applications such as Ubersense are used to analyze motion-based activities. The ultimate goal is for each participant to leave with workable knowledge and resources to develop STEM activities for their elementary classroom.

**CI 751AC. Inquiry Instruction as a Foundation of Science Education in the Elementary Classroom (0.5).**

Inquiry-based education is a powerful instructional strategy that has shown increased intellectual engagement and has fostered deep understanding through the development of hands-on and minds-on science activities. The 5E learning model develops the natural curiosity of elementary students to stimulate an inquiry mentality of learning science. Using the NGSS standards as the foundation, participants learn to analyze or dissect the standards for critical content and develop engaging science lessons. Throughout the workshop, participants have the opportunity to observe elementary science activities that correlate to the NGSS standards and are presented in an "activity before concept" method. The workshop presents the instructional foundations of the 5E learning model. Additionally, participants have the opportunity to engage in science activities presented in the 5E learning model. Each participant develops and presents a science activity that uses the 5E learning model. Ultimately, participants learn to read the standards and use the information to develop lessons in the 5E learning model.

**CI 751AD. Motivating the Writer in Every Student (0.5).**

Participants engage in multisensory writing strategies that encourage all students to learn how to effectively write in various modes. The day is designed around an accumulation of research-based procedures used over 22 years' experience as a classroom teacher, writing coach, academic coach and blended virtual teacher. Teachers leave the workshop with various tools that they are able to use with their K-5 students. Time is also spent discovering author Jon Scieszka, children's author and creator of "Guys Read." If workshop participants teach male students that are discouraged by reading and writing, this author has a reputation of altering those mindsets. Finally, the day also includes how to prepare students for the Multidisciplinary Performance Task portion on the Kansas State Assessment.

**CI 751AE. Fractions and Decimals Made Easier (0.5).**

Discusses difficulties elementary school students face in learning fractions and decimals and ways teachers can help in handling these topics. Research-based workshop incorporates current theories of cognitive science in the teaching and learning of fractions and decimals. It consists of several hands-on activities focusing on such key issues as what initial instruction should focus on, what aspects of fractions and decimals should be stressed, and how some common misconceptions involving these topics can be overcome.

**CI 751AF. The Highly Engaged Classroom (0.5).**

Participants learn how to use effective engagement techniques and strategies to facilitate the 'ultimate' level of student engagement. There are ample opportunities for making classroom connections, energizing attitudes, sharing ideas and best practices.

**CI 751AG. Nonverbal Classroom Management (0.5).**

Studies Michael Grinder's work in the area of nonverbal communication. As teacher behavior establishes classroom management, and classroom management is the language of relationship, we know that what a teacher DOES communicates. Students increase awareness of the messages in body language and

consider together how to create a safe, supportive, productive classroom environment.

**CI 751AI. Differentiations and Scaffolds in Instruction (0.5).**

Examines, from principle to practice, differentiated instruction and scaffolds to meet the needs of individual students. Interactive, collaborative experience includes modeling and using several research-based strategies which lend themselves to classroom use as teachers work to make the best use of instructional opportunities.

**CI 751AJ. Simple View of Reading: The Ingredients of Reading and Instructional Supports (0.5).**

Reviews theoretical models of reading from research, such as the Simple View of Reading and Scarborough's Rope to help teachers understand the ingredients of reading comprehension. Areas addressed include word recognition, language comprehension and automaticity. Participants learn and experience strategies to address the different components within all content areas. These strategies help students access the content that they need to learn to become college and career ready.

**CI 751AK. KMIC Summer Mentor Forum (0.5).**

Mentors from KMIC member districts who have been trained by the New Teacher Center are invited to attend the Summer Mentor Forum. Participants collaborate and network with other mentors from across the state. Topics for the forum are: mentoring around social emotional learning, differentiating the use of tools, analyzing a case study, and investigating resources in the Learning Zone. Structures include coaching conversations, focused dialogue, World Café, and triad conversations.

**CI 751AL. Integrating STEM in the Primary Classroom (0.5).**

Professional learning opportunity aimed to increase student success in science by focusing on the implementation of integrated STEM in the primary classroom. Participants increase their (1) confidence in implementing iSTEM instruction and content knowledge, (2) instructional level of iSTEM pedagogical skills leading to effective lessons using the 5E process, (3) knowledge and factors in discourse, assessment and curriculum to apply Kansas College and Career Ready Standards for the Next Generation of Science Standards in their instructional practice, and (4) focus on STEM instructional practices to increase student attitude toward science, technology, engineering and math learning.

**CI 751AM. Integrating STEM in the Intermediate Classroom (0.5).**

Professional learning opportunity aimed to increase student success in science by focusing on the implementation of integrated STEM in the intermediate classroom. Participants increase their (1) confidence in implementing STEM instruction and content knowledge, (2) instructional level of iSTEM pedagogical skills leading to effective lessons using the 5E process, (3) knowledge and factors in discourse, assessment and curriculum to apply Kansas College and Career Ready Standards for the Next Generation of Science Standards in their instructional practice, and (4) focus on STEM instructional practices to increase student attitude toward science, technology, engineering and math learning.

**CI 751AN. Creating Literacy Moments with the Current 6th-8th Grade William Allen White Books (1).**

Looks at five of the preselected books from the 2016 WAW 6th-8th grade master list. Participants need to purchase/bring to class the five preselected books and have read two prior to class. Participants gain insight on how to incorporate the WAW books during teacher read-aloud time, small-group work, or literature circles with the use of specific comprehension strategies, vocabulary, writing prompts, close

reading, and accompanying informational text. Each participant leaves the workshop with five unit guides.

**CI 751AO. Designing the "WOW" Unit (1).**

Participants research ways to make learning relevant, engaging and real. Participants either individually or collaboratively build a unit that can be used in the classroom using the research on connecting learning to real-life.

**CI 751AP. Social Emotional Learning in the School Community (0.5-3).**

Helps the attendee understand the purpose of the Social, Emotional and Character Development Standards and how these standards provide classrooms and schools with a framework for integrating social-emotional learning (SEL) with character development so that students learn, practice and model essential personal life habits that contribute to academic, vocational and personal success.

**CI 751AQ. Mentoring for Effective Instruction (1).**

Targeted professional development series designed to advance the skills, abilities and knowledge of mentors and coaches of early career teachers. Ensures that experienced teachers become even more effective in their skills in advancing the practice of new teachers, ultimately helping to improve student learning.

**CI 751AR. Fostering Resiliency: Helping Children with Challenging Life Situations Using Children's Literature (0.5).**

Teachers learn how to foster resiliency through instructional techniques such as: (1) increasing social bonding; (2) setting clear and consistent boundaries; (3) teaching life skills; (4) providing care and support; (5) setting and communicating high expectations; and (6) providing opportunities for meaningful participation, through the use of children's literature. Participants view, gather and develop resource plans using recent picture book publications.

**CI 751AS. Creating a Makerspace/Genius Hour in the Classroom (1).**

Discover how to transform the classroom into a place where students want to come in and learn; a classroom where teachers create a space to empower students of all levels to explore their own passions through passion projects.

**CI 751AU. New Horizons - I Miss Pluto! (1).**

New Horizons for Kansas K-12 seeks to connect educators to space science via the Cosmosphere and using NASA content, helping to excite the next generation about NASA missions and to encourage them to pursue STEM careers. Toward that goal, this class aligns well with the following NASA research priorities: understanding the universe and our origins through the study of deep space, new crew vehicles including deep space and Mars, living and working in space.

**CI 751AV. Space Agriculture for Kansas K-12 (1).**

Advances the three major education goals of the NASA Office of Education — to support U.S. innovation and competitiveness. Seeks to increase the STEM workforce pipeline through the use of NASA content. Focuses on bringing NASA content to educators who are currently educating the next generation of people with extraordinary knowledge in science and engineering. Focuses on the NASA Office of Education's mission of attracting and retaining students in STEM disciplines by connecting informal and formal education, communicating NASA content to the public, and ultimately using NASA as an engaging method to bring the students into aerospace.

**CI 751AW. Developing Mentoring Skills for Cooperating Teachers (0.5-1).**

Strategies for developing mentoring skills are presented, explored and applied through this hands-on course. This engaging, interactive course prepares the new teacher mentor to understand the seven essentials of

mentoring and to apply these in their district new teacher induction program. The course offers teacher mentors tips and strategies for observing, coaching and providing feedback, in order to assist novice teachers to become successful.

**CI 751AY. Technology Tool Belt: Stress-Free Student-Centered Applications (0.5).**

In this professional learning course, elementary teachers learn about free innovative technologies they can incorporate in their lessons to improve their teaching practices today. Resources presented enable teachers to easily add student-centered technology to their daily classroom routine. Teachers formulate a standards-based weekly plan implementing the technologies presented into center rotations. This enables the teacher to monitor progress as a guide for students instead of the traditional classroom structure with a teacher-directed focus. Ideas for classroom preparations and set up are shared to make the use of technology painless. Resources covered include Web 2.0 tools and interactive whiteboard SMART Notebook software that engages students with learning activities. Technology used includes laptops, video recording devices, a document camera, and an interactive whiteboard. Participants who have these devices available to them and would like to learn easy ways to use them in the classroom, greatly benefit from this professional learning course. (All materials are provided for use during the course. Participants are welcome to bring their own laptops if they choose.)

**CI 751AZ. Improving Classroom Management (1-2).**

Teachers with strong classroom management skills have proven to be more successful than their peers. Course goal is to provide both aspiring and veteran teachers with a tool kit of classroom management structures and techniques to create a positive learning environment where learning can take place.

**CI 751CA. Enhancing Literacy Learning through Movement (0.5).**

Offers curriculum integrating movement, physical activity, and literacy in elementary education. Research of elementary teacher candidates' implementation of integrating movement and literacy content via lesson planning is shown. Participants not only engage in how to enhance literacy learning through movement activities, but also explore and implement practices in their own classrooms. Participants are asked to reflect on organized movement and management procedures in their own teaching experiences.

**CI 751CB. Boost Classroom Learning with STEM Education (0.5).**

Aims to increase student success in science by focusing on the implementation of STEM in the primary and intermediate classroom. Participants engage in a variety of STEM activities in small groups, explore the use of free STEM technology to support learning, and learn tips and tricks for facilitating STEM activities.

**CI 751CC. Look What I Can Do! Tapping the Talents of Primary Students (0.5).**

Provides teachers with the opportunity to design complex learning experiences based on discovery, inductive, deductive and inquiry approaches. Teachers learn why the approach works, see examples of primary students learning when a teacher uses the approach, then have the opportunity to collaborate in designing standards-based tasks and lessons to use in the classroom for each model. Teachers are guided in the design of tasks that also promote student use of individual talents, many of which may not be fostered when using direct instruction. Teachers also dialogue about pacing and assessments related to the complex tasks they design. Participants select one of the four lesson plans they complete and customize it to fit their classroom, teach the

lesson, and then submit two reflections, one on the taught lesson and another on the remaining three models.

**CI 751CD. Engaging K-8 Learners with Inquiry and Project-Based Strategies (0.5).**

Inquiry and project-based learning are powerful instructional strategies that have shown increases in intellectual engagement and have fostered deep understanding through the development of hands-on and minds-on activities. The 5E learning model develops the natural curiosity of K-8 students to provide an inquiry mentality of learning science, social studies and math. Using the NGSS and Common Core Standards, participants learn to dissect the standards for critical content and develop engaging lessons. Through this professional learning course, participants have the opportunity to observe and participate in lessons that correlate to the standards and are presented in an "activity before concept" method. This professional learning course allows participants the opportunity to observe and develop lessons that can be used directly in their classroom and ultimately create an engaging environment.

**CI 751CE. Teaching Historical Inquiry and Reasoning (1).**

What and how educators teach in history classes are controversial matters. For some, history is a form of information (students mastering an agreed-upon narrative) rather than a form of knowledge. But students then lack any way of determining whether it, or any other narrative, is accurate. The word "history" derives from the Greek word *historia* meaning "inquiry, knowledge acquired by investigation." Course is based on the research findings of the Stanford History Education Group. Participants create assignments that engage millennial learners in history content and historical inquiry while meeting the History/Social Studies Common Core and Kansas HGSS Standards.

**CI 751CF. A Novel Idea (3).**

Participants need access to *The Book Whisperer: Awakening the Inner Reader in Every Child*, by Donalyn Miller — ISBN-13: 978-0470372272. Participants create an effective independent reading program that supports their content area; identify read-aloud books for individual content areas; evaluate and identify a personal reading style; learn to distinguish between different types of readers and how to create a classroom environment to support all readers; and learn to evaluate literature circle material and create a program that works for individual content areas.

**CI 751CG. Getting Along in Education: Building Effective Relationships (1).**

Workshop focuses on communication and conflict resolution skills to make the education setting a more active and positive learning environment with a focus on learning. Develops strategies to deal with classroom situations using effective work in a problem solving model with students. Communication with parents, and interactions with colleagues are discussed and implemented. Participants learn skills and tools that provide them with opportunities to make the educational setting a positive and rewarding environment for all of the students and adults involved.

**CI 751CI. Inclusive Education Strategies in the Classroom (1).**

Working in the regular education classroom with students who have special education needs in curriculum and social-emotional areas can be challenging and rewarding. Course reviews characteristics of, and strategies for, supporting students with special education needs. Participants learn and develop lessons and practices that assist them in providing diverse and unique learning opportunities to the students in their classrooms.

**CI 751CJ. Behavior Management in the Classroom (1).**

Emotional and behavioral concerns in the classroom continue to increase in frequency and intensity, interfering with learning. Course

looks at problematic behaviors and emotions exhibited by students and potential causes and triggers. Participants research behavior concerns and develop lessons and practices to assist in student learning. Course goal is to develop plans for working with students, parents and administration to provide a positive environment for students, and to develop individual and classroom behavior management plans.

**CI 751CK. 8 to Great: Empowering Your Students (0.5-1).**

By incorporating 8 to Great principles in their personal and professional lives, participants become more effective in dealing with student behaviors, understanding how to internally motivate students, and guiding students to success. Participants discover (1) a guaranteed positive attitude formula that is simple to live and teach, (2) a decision-making formula to help make the right decisions every time, (3) a one-minute process for using imagination to achieve goals and dreams, (4) a forgiveness formula for releasing past hurts and mistakes, (5) a communication skill that breaks through negative patterns such as defensiveness, (6) a process for dealing with strong emotions such as depression and rage, and (7) a one-minute gratitude exercise that helps every day start out right.

**CI 751CL. Our Journey - A Year of Growth (1).**

Learn about a student made portfolio using monthly writing prompts and projects to encompass the entire school year. This is a great opportunity to help build better relationships with students and parents through the writing process.

**CI 751CM. Co-Teaching 101: A New Type of Classroom (1).**

Presents lessons learned using co-teaching in first grade classrooms. Demonstrates a method of combining two classrooms into one learning community. Models methods for reaching all levels of students and obtaining their highest level of success. Demonstrates using a guided reading block and math block to provide for all levels of learning, and to provide enrichment and reinforcement. Provides examples of creating this type of combined classroom and learning environment during center time and what it looks like.

**CI 751CN. Positive Behavior Supports (2).**

Positive Behavior Supports is a behavior management system. Teachers gain strategies such as safe spots, behavior plans, and a reward system that supports positive student behaviors allowing for better relationships, communication, and integration for student success. A close analysis of the MTSS Behavior component also occurs, supporting a design for the expectations and behaviors of students. Learn how to create, modify, and execute behavior plans that are designed for the participant's own classroom.

**CI 751CO. Classroom Contexts: Knowing Our Students (1).**

Intended to heighten the holistic understanding of classroom teachers in terms of who their students are as learners and individuals. Course is directly aligned with Standard 1: Knowledge of Students, from the National Board for Professional Standards, Career and Technical Education Standards.

**CI 751CQ. LFKS Professional Development (0.5-3).**

Individuals in this session attend Learning Forward Kansas Professional Development sessions as provided by the organization and complete nondegree graduate credit course requirements.

**CI 751CR. Mindset, Motivation and Engagement (0.5).**

Explores the topics of mindset, motivation and engagement in the classroom. Several empirically-supported strategies that target mindset, motivation and engagement in the classroom are discussed.

**CI 751CS. Intensive Reading Interventions (Elementary) (0.5).**

Explores a variety of intensive reading interventions that can be used with struggling readers as well as English Language Learners in the elementary classroom.

**CI 751CT. Electronics for Everyone (0.5).**

Introductory course specifically targeted to educators and nonengineers who want to learn the basics of electronics with hands-on applications. Educators seeking professional development opportunities gain access to resources and the ability to integrate them into their own teaching practices. Students start with simple circuits, learn how to solder, create interactive projects, and eventually progress to programming with an Arduino microcontroller.

**CI 751CU. Hands on STEM (0.5).**

Professional development course that explores the constructivist theory of learning. Students learn to create hands-on activities based on their own academic interests. Participants research a STEM topic, prototype an activity or interaction, share, receive feedback, iterate and finally showcase their activities. Students also learn several tips and tricks on presenting scientific topics using interactions.

**CI 751CV. Writing a Positive IEP (0.5).**

While the basics of writing an IEP are important, instruction often neglects the tone of the IEP, especially in regard to the present levels of the student. Parents are often overwhelmed by the list of skills their child has to master, and in turn, experience an "us against them" mentality. In this seminar ways to write and present levels that help parents feel like the IEP meeting has a cooperative, rather than a combative atmosphere, and that their child's team sees the student in a positive light.

**CI 751CW. Increasing Classroom Engagement (1).**

Provides both aspiring and veteran teachers a tool kit of total participation and engagement techniques from which they can pull to create a positive learning environment in which learning can take place.

**CI 751CX. Expanding Mentoring Skills for Cooperating Teachers (0.5-1).**

Provides teacher leaders with expanded opportunities to practice and apply mentoring skills and techniques with beginning teachers to improve their effectiveness in the classroom. Repeatable for credit.

**CI 751G. Creating Literacy Moments with the 3rd-5th Grade William Allen White Books of 2016 (0.5).**

Looks at five of the preselected books from the 2016 WAW 3rd-5th grade master list. Participants need to purchase/bring to class the five preselected books and have read two prior to class. Participants gain insight on how to incorporate the WAW books during teacher read-aloud time, small-group work, or literature circles with the use of specific comprehension strategies, vocabulary, writing prompts, close reading, and accompanying informational text. Participants leave the workshop with five unit guides.

**CI 752. Special Studies in Education (1-3).**

For elementary and secondary school teachers. Repeatable for credit with advisor's consent. Prerequisite(s): teacher certification or departmental consent.

**CI 753. Special Studies in Education (1-3).**

For elementary and secondary school teachers. Repeatable for credit with advisor's consent. Prerequisite(s): teacher certification or departmental consent.

**CI 754. Special Studies in Education (1-3).**

For elementary and secondary school teachers. Repeatable for credit with advisor's consent. Prerequisite(s): teacher certification or departmental consent.

**CI 755. Special Studies in Education (1-3).**

For elementary and secondary school teachers. Repeatable for credit with advisor's consent. Prerequisite(s): teacher certification or departmental consent.

**CI 758. Nature of Technology and Educational Implications (3).**

Addresses issues regarding the nature of technology and how it impacts thinking and action related to learning and teaching. Includes examinations of historical and contemporary examples, with applications in classroom instruction, assessment and supervision. Integrates appropriate educational technology tools and instructional strategies for culturally, developmentally and linguistically diverse student populations. *Course includes diversity content.*

**CI 760A. Creating an Effective Classroom (3).**

Part of the core for a Master of Arts in Teaching. Participants conduct an initial examination of instructional methods, educational trends and effective practices for classroom management. Participants in the Transition to Teaching program have secured (or have been cleared to secure) a teaching contract in an accredited school system. Prerequisite(s): admission to the Transition to Teaching program. Corequisite(s): CI 702 and CI 707.

**CI 761A. Instructional Planning and Technology (2).**

Intended as part of the core for a Master of Arts in Teaching. Addresses issues in instructional planning including: identifying appropriate learner goals, aligning goals with accepted standards, models of instruction, integrating technology into instruction, adapting instruction to meet individual student needs, including English language learners, and differentiated instruction. Prerequisite(s): students have secured a teaching contract in an accredited school system, have met the prerequisites for admission to the Transition to Teaching program at WSU, and have successfully completed CI 702, CI 707 and CI 760A. Corequisite(s): CI 743.

**CI 764. Interdisciplinary STEM Education: Entry Course (3).**

Helps students learn methods of instruction in integrated STEM, using the lens of STEM content knowledge and modeling, inquiry and design practices. A set of methodologies that students can effectively adapt to a variety of situations beyond their specific disciplines are introduced. Students learn how to identify, develop, deliver and evaluate STEM instructional activities with models of project-based learning. Includes a comprehensive overview of the theories of, and instructional strategies for, integrated STEM education. Students have various opportunities to evaluate curricula developed for integrated STEM education, as well as procedures for developing a new STEM curriculum. Class comprises a combination of lecture, experiential exercises, discussion, in-class presentations, videos, individual assignments and team assignments.

**CI 769. Instructional Strategies, Technology Integration and Assessment (2).**

Intended as part of the core for a Master of Arts in Teaching (Transition to Teaching and/or Middle/Secondary Residency Programs). Allows the student to explore a variety of instructional strategies, technologies and assessment techniques while learning how to adapt these strategies and techniques to meet the individual needs of the students. Prerequisite(s): CI 743, 761A, 768, and continued employment by a school district. Corequisite(s): CI 744.

**CI 773. Mentoring and Coaching Transformational Relationships (3).**

Offers an introduction to how individuals learn and change, with a particular emphasis on how to improve effectiveness in the work environment, both physical and virtual. Students learn to use mentoring and coaching developmental tools, study contextual components to foster learning in organizations, and how to lead as an internal mentor/coach. This course takes an in-depth look at communication skills as related to mentoring and coaching relationships. Students learn and practice competencies related to: adult learning, building rapport, active listening, cultural sensitivity, critical and reflective thinking,

and establishing trusting relationships through self-awareness and mindfulness. Prerequisite(s): admission to WSU Graduate School.

**CI 774. Teaching English as a Second Language (1-3).**

Examines current objectives for teaching English as a second language and a variety of methods and specialized techniques for obtaining these objectives. Students develop knowledge of criteria for evaluating curricula, teaching materials and professional literature related to teaching English as a second language and bilingual education. Students examine methods of selecting and adapting curricular ways to enhance the curriculum through developing activation plans for involving parent and community resources in the ESL/BE curriculum. Designed to meet the standards required for ESL/BE endorsement or certification in TESOL.

**CI 775. Applied Linguistics: ESL/Bilingual Teacher(s) (3).**

Examines a broad picture of human language: what it is, what it is used for and how it works. Enables students to recognize uninformed statements about language, to examine personal beliefs and attitudes about language, and to learn to use basic tools to analyze language in particular as it relates to teaching English as a second language. Provides an introduction to most of the sub-fields of linguistics (e.g., phonetics, morphology, semantics, syntax, etc.).

**CI 776. Second Language Acquisition (3).**

Surveys nativist, environmentalist and interactionist theories of second-language acquisition. Covers a broad introduction to the scope of second-language acquisition and bilingualism by reviewing substantive research findings as well as causes for differential success among second-language learners. Includes discussions over readings, collaborative activities and presentations involving application of theory to teaching practice.

**CI 777. ESL Assessment (3).**

Examines legal, theoretical and practical considerations in ESL/BE students. Explores a variety of established principles of language assessment, procedures for identifying language-minority students and applications for these procedures and techniques. Covers level placement, monitoring language development and exit criteria for language programs. Introduces the desirable qualities of tests: validity, reliability, practicality and beneficial backwash.

**CI 778. TESOL Content Test Preparation (3).**

Provides teacher candidates preparation for the licensure exam through summaries of ESOL topics in (1) linguist theories, (2) examination of student language production, (3) research-based teaching strategies, (4) assessment procedures and techniques, (5) cultural and professional matters, and (6) test-taking strategies. Prerequisite(s): senior standing for undergraduate students.

**CI 779. Disciplinary Literacy and 21st Century Fluencies (2).**

Offers secondary teachers an understanding of language, the literacy process and emerging 21st century fluencies and their application to teaching in secondary schools. The course emphasizes reading and writing in content areas, as well as instructional strategies to support students' literacy development. It focuses on ways that reading, writing, speaking and listening are developed and used in learning discipline-specific curriculum, including adaptations for culturally diverse and exceptional learners. The course additionally examines how to integrate 21st century fluencies into content instruction.

**CI 780M. Technology in the Classroom: Mathematics (1-2).**

Focuses on the integration of information and communication technology in mathematics. Explores mathematics-related software and online resources, instructional strategies and assessment techniques. Strongly focuses on the use of technology to meet the subject matter, technology and curriculum standards. Emphasizes building a

community of reflective learners. Prerequisite(s): entrance into teacher education, valid teacher certificate/license, or instructor's consent.

**CI 780S. Technology in the Classroom: Science (2).**

Assists science teachers in integrating the use of technology appropriate for their classrooms. Explores software and online resources, instructional strategies and assessment techniques. Strongly focuses on the use of technology for communication and student assistance to meet the science and technology curriculum standards. Emphasizes building a community of reflective learners. Prerequisite(s): entrance into teacher education, valid teacher certificate/license or instructor's consent.

**CI 781. Cooperative Education (1-4).**

Provides the candidate a work-related placement that integrates theory with a planned and supervised professional experience designed to complement and enhance the student's academic program. CI graduate candidates are limited to any combination of 6 credit hours of pass/fail, S/U, and Cr/NCr credit toward the degree program.

**CI 783. Special Projects in Internet (1-2).**

Students explore and expand their knowledge of the internet. They complete a special project designed to use knowledge and experiences developed in CI 782. Students and instructor establish goals and activities appropriate for graduate-level study and applicable in an educational setting. Prerequisite(s): CI 782 or instructor's consent.

**CI 784. Foundations of Education for Individuals with Exceptionalities (3).**

Addresses the basic foundations of special education across exceptionality areas. A general history of special education and its relationship to general education trends (as well as the disability movement as a whole) is discussed. Students are familiarized with important special education legislation and regulations, learn the role litigation has played in the development of the discipline, and study ethical issues in the provision of special education services. Course explains the cognitive, communicative, social/emotional, sensory and physical characteristics of students with mild/moderate (high incidence), moderate/severe (low incidence), and gifted exceptionalities and how these characteristics influence planning and instruction. Issues related to the field of special education include: characteristics and learning needs, identification, theories of intelligence, diverse populations and curriculum differentiation. Course examines the roles of students, professionals, and families in meeting student needs. *Course includes diversity content.*

**CI 785. Instructional Design and Learning Management Systems (LMS) (3).**

Students learn and apply the principles of instructional design as they develop online instructional units that can be delivered via Learning Management System (LMS: e.g., Canvas, Google Classroom or Blackboard). Students follow the entire process for online course design and development by learning how to identify learning objectives, analyze tasks and learners, organize resources, design instructional units, develop instructional multimedia, specify instructional strategies, and assess learners' outcomes within an LMS. Prerequisite(s): graduate standing or departmental consent.

**CI 787. Emerging Educational Technology (3).**

Introduces emerging technologies which have been gaining attention and increased presence in educational settings. Students develop a deeper knowledge of the ways that emerging technologies can empower teaching and learning through research and experiential learning about augmented reality, virtual reality, learning analytics, web 3.0, 3D printing, Massive Open Online Courses (MOOCs), microcomputing, machine learning, artificial intelligence, mobile learning, digital game-based learning and internet of things. In addition, students examine

the expected challenges caused by emerging technologies and find strategies to overcome such issues. Prerequisite(s): graduate standing or departmental consent.

**CI 788. Multimedia Production (2).**

Project-based learning course focuses on students' learning to develop or improve multimedia development skills so that they can use various multimedia teaching materials in their professional setting. Students learn to create instructional multimedia by using image editing software (e.g., Photoshop, GIMP), audio recording/editing software (e.g., Audacity), and movie editing software (e.g., WeVideo, iMovie, Windows Moviemaker). In addition to learning how to use this software, students have an opportunity to apply their critical thinking skills through evaluating others' work and reflecting on their own instructional multimedia products.

**CI 789. Working with Diverse Student Populations (1).**

Surveys the strengths and needs of learners with exceptional needs, including those learners with physical, sensory and cognitive disabilities, and those learners who exhibit gifts and talents. Explores the effects of cultural differences and human development on individuals with exceptional learning needs. Reviews current educational policy, practices and services. *Course includes diversity content.* Prerequisite(s): admission to the Transition to Teaching program.

**CI 790. Special Problems in Education (1-4).**

Directed reading, activity or research under supervision of a graduate instructor. Prerequisite(s): departmental consent.

**CI 794. Diversity and Culture in a Global Society (3).**

Equips students to become multi-instructional leaders who practice cultural and social justice. Provides students with the necessary concepts of diversity to scaffold a paradigm shift from cultural awareness to cultural diplomacy. Enables students to become successful global citizens in the globalized world. Prerequisite(s): graduate standing or departmental consent.

**CI 795. Change, Creativity and Innovation (3).**

Focuses on key theories and elements related to organizational change, the creative process and innovation. Students develop an understanding of creative thinking processes to explore how those processes can impact change and lead to innovation. Prerequisite(s): graduate standing or departmental consent.

**CI 796. Family and Professional Collaboration (3).**

Assists the special educator in developing the skills to collaborate and consult with parents/family members, general educators, support personnel, paraprofessionals/teaching assistants, and community agencies to facilitate the needs of children with exceptionalities.

**CI 797. Ethics and Professional Conduct (3).**

Cross-listed as CESP 853. Introduces ethical and professional responsibilities of school psychologists and behavior analysts. Covers topics related to informed consent, due process, confidentiality and selection of least intrusive, least restrictive behavior change procedures. School psychology students: no grade below B- (2.750) will count toward the degree. Prerequisite(s): instructor's consent.

**CI 798. Virtual Learning: Teaching and Mentoring Online (3).**

Offers an introduction to how individuals learn and change, with a particular emphasis on how to improve effectiveness in the work environment, both physical and virtual. Students learn to use mentoring and coaching developmental tools, study contextual components to foster learning in organizations, and how to lead as an internal mentor/coach. This course takes an in-depth look at communication skills as related to mentoring and coaching relationships. Students learn and practice competencies related to: adult learning, building rapport,

active listening, cultural sensitivity, critical and reflective thinking, and establishing trusting relationships through self-awareness and mindfulness. Prerequisite(s): admission to WSU Graduate School.

**CI 803. Mentoring and Coaching: Metacognitive Practice (3).**

This course is designed to prepare leaders who are interested in developing professional talent/expertise within organizations; providing professional mentoring/coaching in both virtual and physical contexts. Grounded in theory and research on adult learning and instructional methods, this course integrates applied learning and effective engagement through mentoring/coaching practices. This applied learning experience equips students with a deeper understanding of a variety of mentoring and coaching techniques to improve individual learning and performance as well as, knowledge necessary to design effective mentoring/coaching programs at the organizational level. Prerequisite(s): CI 773.

**CI 812. Transition across Life Span (2).**

Examines aspects of transition programming for individuals with exceptionalities across their life span. Addresses transitions from (a) early childhood special education settings to the school environment, (b) elementary to middle school, (c) middle school to high school, (d) one special education setting to another (e.g., self-contained classroom to resource room or general education classroom), and (e) high school to postsecondary settings and independent functioning. Discusses roles of individuals with exceptional learning needs, parents, educators and community personnel. Prerequisite(s): CI 749A, 749F, or 749G.

**CI 814. Advanced Methods: Gifted (2).**

Develops strategies and techniques, including technology, for planning qualitatively-differentiated curriculum to meet the unique academic needs of the gifted learner. Prerequisite(s): CI 749G. Corequisite(s): CI 814A.

**CI 814A. Internship/Practicum: Advanced Methods Gifted (1).**

Provides a supervised opportunity for students to implement and evaluate differentiated curriculum for gifted learners. Prerequisite(s): CI 749G. Corequisite(s): CI 814.

**CI 815. Advanced Teaching Strategies for Students with Mild/Moderate Disabilities (2).**

Develops strategies and techniques related to the diverse individual needs of learners identified with mild/moderate disabilities including ensuring access to the general education curriculum, environments and extracurricular activities through adaptations, modifications and use of technology. Corequisite(s): CI 815A.

**CI 815A. Internship/Practicum: Advanced Teaching Strategies for Students with Mild/Moderate Disabilities (1).**

Provides a supervised opportunity for students to implement and evaluate learning experiences and curriculums that develop the cognitive potential of learners with adaptive learning needs and their accessibility to the general education curriculum. Prerequisite(s): CI 749A. Corequisite(s): CI 815.

**CI 816. Advanced Methods: Developing Critical and Creative Thought (2-3).**

Curriculum and instruction students enroll for 2 credit hours. Students use understanding of cognitive and creative development to construct learning experiences that challenge the cognitive and creative potential of gifted learners. Prerequisite(s): CI 749G. Corequisite(s): CI 816A. Graduate certificate in engineering students enroll for 3 credit hours. Graduate students in engineering use understanding of cognitive and creative development to construct learning experiences that challenge the cognitive and creative potential of university students. Prerequisite(s): CESP 811, 820. Corequisite(s): CI 816A.

**CI 816A. Internship: Developing Critical and Creative Thought (1-3).**

Curriculum and instruction students enroll for 1 hour. Provides a supervised opportunity for students to implement and evaluate curricula that challenge the cognitive and creative potential of gifted learners. Prerequisite(s): CI 749G. Corequisite(s): CI 816. Graduate certificate in engineering students enroll for 3 credit hours. Provides engineering students a supervised opportunity to implement and evaluate curricula that challenge the cognitive and creative potential of engineering students within a university-level engineering class. Corequisite(s): CI 816.

**CI 817. Language to Literacy: Meeting the Needs of Students with Disabilities (2).**

Provides content relevant to language development and disorders that impacts the educational achievement of students with special education classifications. Includes oral and written communication, emergent literacy and reading. Candidates learn how to apply educational interventions that are effective in meeting the language and literacy needs of all students including strategies for exceptional students from English for Speakers of Other Languages (ESOL) backgrounds. Specifically, candidates learn appropriate instructional strategies for teaching oral language, reading and written expression. Emphasizes the principles of information processing as they apply to effective instructional procedures. Prerequisite(s): CI 749A. Corequisite(s): CI 817A.

**CI 817A. Internship/Practicum: Language to Literacy (1).**

Provides a supervised opportunity for students to evaluate and implement learning experiences, including application of educational interventions that are effective in meeting the language and literacy needs of students. In addition, candidates implement educational interventions that are effective in meeting the language and literacy needs of students as well as implementing appropriate strategies for teaching oral language, reading and written expression. Prerequisite(s): CI 749A. Corequisite(s): CI 817.

**CI 818. Positive Behavior Supports for Students With Exceptionalities (3).**

Develops knowledge and skills for conducting a functional behavior assessment along with a positive behavior support plan needed by classroom teachers to affect academic and social/emotional outcomes. Addresses connections of challenging behaviors to aspects of the learner's (a) environments, (b) cultural diversity, (c) developmental and academic skills, and (d) physiological needs along with an awareness of disability harassment, bullying and the social/emotional needs of the exceptional child. Prerequisite(s): CI 749A. Corequisite(s): CI 818A.

**CI 818A. Internship/Practicum: Positive Behavior Supports (1).**

Provides a supervised opportunity for candidates to evaluate and implement positive behavioral supports for students with challenging behaviors, including functional assessment of problem behavior, design and implementation of behavior plans, and provision of ongoing positive behavior supports. Prerequisite(s): one of the following courses — adaptive, CI 749A; functional, CI 749F; gifted, CI 749G; and full admission to the special education program. Corequisite(s): CI 818.

**CI 819. Nonsymbolic and Symbolic Communication (2).**

Develops strategies and techniques for assessing, designing and delivering instruction in order to meet the unique communication needs of learners with severe and multiple disabilities. Prerequisite(s): CI 749F. Corequisite(s): CI 819A.

**CI 819A. Internship/Practicum: Communication (1).**

Provides a supervised opportunity for candidates to evaluate and implement nonverbal and verbal communication strategies for students

with functional learning needs. Prerequisite(s): CI 749F. Corequisite(s): CI 819.

**CI 820. Advanced Teaching Strategies for Students with Severe and Multiple Disabilities (2).**

Develops strategies and techniques, including assistive technology, related to curriculum, instruction and planning of the learning environment within the functional curriculum. Imparts knowledge, skills and dispositions needed to meet the diverse cognitive, physical, social and emotional needs of students with severe and multiple disabilities. Prerequisite(s): CI 742, 749F, full admission into the special education — functional program. Corequisite(s): CI 820A.

**CI 820A. Internship/Practicum: Low-Incidence Learning Needs (1).**

Provides a supervised opportunity for candidates to evaluate and implement learning experiences, including curriculum planning, environmental arrangements, instructional delivery, and use of assistive technology, that develops cognitive, physical, social and emotional needs of students with severe and multiple disabilities. Prerequisite(s): CI 742, 749F, full admission into the special education — functional program. Corequisite(s): CI 820.

**CI 821. Classroom Reading Practicum (3).**

Students participate in a practicum experience, delivering developmental and corrective reading instruction in a classroom setting. Prerequisite(s): CI 705.

**CI 822. Principles of Nondiscriminatory Assessment for Students With Exceptionalities (2).**

Applies standardized and informal evaluation techniques including critical evaluation of standardized tests, their appropriateness for special populations (including school-age individuals with exceptionalities and reading disabilities as well as young children and culturally and linguistically diverse learners), and alternative methods of assessment and intervention techniques based on diagnostic profiles. Historical, racial, gender and social disproportionalities issues within special education are also addressed. Prerequisite(s): CI 749A, 749F or 749G.

**CI 845. Curriculum Models and Practice (2).**

Examines theories, development processes, evaluation procedures and current practices in curriculum. Emphasizes multiple conceptual frameworks for thinking about curriculum and reflective inquiry into the implications of those frameworks in today's classrooms and schools. Prerequisite(s): admission to MAT program.

**CI 847A. Practicum/Field Experience: ECU (1-10).**

Provides supervised field experiences for candidates to evaluate and implement learning experiences, including curriculum planning, environmental arrangements, instructional delivery, and use of assistive technology that links to increased development in all domains. Experiences are assigned at three levels, infant-toddler, preschool and K-3. Prerequisite(s): CI 614, 617 and/or CI 703, and full admission into the special education/early childhood unified program.

**CI 847IT. Practicum/Field Experience in ECU: Infant/Toddler (3-4).**

Candidates participate in practicum teaching opportunities located in an infant/toddler setting that includes young children both with and without special needs. Candidates work with a cooperating/mentor teacher(s), other professionals and university supervisor to plan, implement and assess services and supports for young children at this level. *Course includes diversity content.* Pre- or corequisite(s): CI 614.

**CI 847KG. Practicum/Field Experience in ECU: K-3 (3-4).**

Candidates participate in practicum teaching opportunities located in a K-3 setting that includes young children both with and without special needs. Candidates work with a cooperating/mentor teacher(s), other

professionals and university supervisor to plan, implement and assess services and supports for young children at this level. *Course includes diversity content.* Pre- or corequisite(s): CI 703.

**CI 847P. Practicum/Field Experience in ECU: Preschool (3-4).**

Candidates participate in practicum teaching opportunities located in a preschool setting that includes young children both with and without special needs. Candidates work with a cooperating/mentor teacher(s), other professionals and university supervisor to plan, implement and assess services and supports for young children at this level. *Course includes diversity content.* Pre- or corequisite(s): CI 617.

**CI 849. Practices and Trends in Action Research (2).**

In the transition to teaching or residency licensure program, this course introduces techniques of action research and requires students to apply these techniques to specific learning environments. The prerequisites/corequisites for each program differ. Prerequisite(s): for the Transition to Teaching and MLS Residency programs: CI 748, 848, and continued employment by a school district; for the ECU Residency program: CI 603. Corequisite(s): for the Transition to Teaching and MLS Residency programs: CI 749 or 781; for the ECU Residency program: CLES 801.

**CI 860. Seminar in Research Problems (1-3).**

Helps MA in teaching graduate students formulate an acceptable agenda for developing a professional action research project or portfolio to satisfy the application requirements for the master's in teaching program. Fulfills the university's professional and scholarly integrity training requirement covering research misconduct, publication practices and responsible authorship, conflict of interest and commitment, ethical issues in data acquisition, management, sharing and ownership. Prerequisite(s): CLES 801.

**CI 862. Evidence-Based Inquiry: Capstone Project Proposal (1-2).**

Students develop a research-based inquiry proposal as a process for increasing skills as evidence-based practitioners. A formal proposal is written to research evidence-based practices or other important knowledge bases relevant to learning and instruction. Prerequisite(s): CI 860 or 885 or all SPED core classes or instructor's consent.

**CI 863. Evidence-Based Inquiry: Capstone Project (1-2).**

Students complete and present a research-based inquiry report as a process for increasing skills as evidence-based practitioners. This formal report is presented to a preidentified audience describing the results of an inquiry into a knowledge basis relevant to the fields of learning and instruction. Prerequisite(s): CI 862.

**CI 867. Interdisciplinary STEM Education: Exit Course (3).**

Cultivates students' STEM content knowledge and pedagogical skills for implementing integrated STEM teaching by providing practical experiences in formal and informal STEM settings. Experiential and application-based course which allows students to demonstrate their ability to develop integrated STEM curriculum. Prerequisite(s): CI 764 and 3-4 courses of individualized pathway STEM courses listed in the certificate program catalog.

**CI 871. Evidence-Based Inquiry Portfolio Proposal (1-2).**

Special education degree candidates/students develop a research-based inquiry proposal as a process for increasing skills as evidence-based practitioners. A formal proposal is written in APA style for the investigation of research and other evidence-based practices that link to the validation of specific curricula, instruction/intervention strategies/methods, or other important knowledge bases that improve practices within the field of special education or related fields. Prerequisite(s): CI 851, 858 and one of the following — CLES 801, CESP 704 or CI 717.

**CI 872. Evidence-Based Inquiry Portfolio Presentation (1-2).**

Candidates in the degree program present/defend a research-based inquiry project that promotes knowledge and skills of being an evidence-based practitioner. A formal paper is written in APA style and a presentation is prepared and delivered to a pre-identified audience describing the results of an investigation of research and other evidence-based practices that link to the validation of specific curricula, instructional and/or intervention strategies, or other important knowledge bases linked to the field of education, special education or related field. The second part of a required capstone project for the master's degree in special education. Prerequisite(s): CI 871.

**CI 875. Master's Thesis (1-2).**

Students complete the research proposal accepted by their thesis committee. Students work closely with their advisor and committee. Students receive credit for this course when their thesis has been completed and defended. Prerequisite(s): CI 860 or 885.

**CI 876. Master's Thesis (1-2).**

Students complete and orally defend their thesis. Students work closely with their advisor and committee. Students needing an additional semester to satisfy these requirements should enroll in one hour of CI 876. Students receive credit for courses(s) when their thesis has been completed and defended. Prerequisite(s): CI 875, 884, 885 or instructor's consent.

**CI 880. Learning Theory and Curriculum Design (3).**

Focuses on cognitive science relative to how people learn and how instruction is designed to facilitate and optimize learning. Students explore several different theoretical perspectives on learning, cognition and cognitive development. Using current learning theories and a range of tools, students come to understand effective curriculum design for a variety of settings. Prerequisite(s): graduate standing or departmental consent.

**CI 881. Instructional Theory (3).**

Fosters the art of teaching and provides students with knowledge and skills to bring instructional theory into practice in order to optimize learning in a variety of professional trainings as well as in multiple sociocultural and educational learning settings. Prerequisite(s): graduate standing or departmental consent.

**CI 884. Inquiry Into Instructional Practice: Part 1 (3).**

Introduces students to the procedures commonly used in research and data analysis. Conceptual, procedural and analysis issues from a wide variety of areas are covered, ranging from formal research techniques to approaches used by researchers involved in investigations in real-life settings. Includes critical analysis of selected published research in the student's professional area. Prerequisite(s): graduate standing or departmental consent.

**CI 885. Inquiry Into Instructional Practice: Part 2 (3).**

Provides students with the skills necessary to conduct research relevant to their professional practice. Includes elements of quantitative as well as qualitative data analysis. Students critically analyze data-based decision making and the potential implications of instructional practice. Fulfills the university's professional and scholarly integrity training requirement covering research misconduct, publication practices and responsible authorship, conflict of interest and commitment, ethical issues in data acquisition, management, sharing and ownership. Prerequisite(s): CI 884.

**CI 890. Special Problems in Education (1-4).**

Directed reading and research under the supervision of a graduate instructor. Graduate students only.

**CI 893. Instructional Leadership: Professionalism and Collaboration (3).**

Focuses on the role of the instructional leader to facilitate the implementation and sustainability of change necessary to support individual and organizational learning. Candidates acquire the skills necessary to facilitate, nurture and maintain partnerships. Prerequisite(s): CI 880, 884, 885.

**CI 894. Advanced Topics in Early Childhood Special Education (1-4).**

Students participate in topical seminars in early intervention offered periodically to facilitate opportunities for the in-depth study of critical issues or topical research in the field of early childhood and/or early childhood special education. Repeatable for credit. Prerequisite(s): CI 603 and at least one methods class — CI 614, 617 or 703.

**CJ - Criminal Justice**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**CJ 510. Crime and Transportation (3).**

Explores the relationship between crime and a variety of forms of transportation, including public transport, paratransit and private vehicles. Looks at crimes against passengers, transit employees and the system itself, as well as some types of terrorism incidents involving transportation. Focuses primarily on transportation as the setting for these crime events, using an opportunity theory perspective, and on situational crime prevention strategies to address these crimes. The use of transportation to facilitate crime is also discussed. When looking at crime and fear of crime, the course examines the utility of adopting a "whole journey" approach.

**CJ 513. Violent Crime (3).**

*General education social and behavioral sciences course*. Examines the extent, causes and policy implications of violent crime. Begins with a review of the rates of violent crime in various parts of the U.S. Provides students with some direct experience of violence such as an emergency room observation period or a panel of victims of violence. Course also covers the theoretical approaches of violent crime as well as factors related to violence among strangers vs. families. Critical reviews of various policy responses to violence, including their likelihood to prevent or reduce violent crime are required.

**CJ 515. Sex Crimes (3).**

Examines and defines what are classified as criminal forms of sexual behavior and the unique challenges they present to the criminal justice system. Examines the extent and nature of sex crimes, sexual predator laws, sexual harassment and the victims of such crimes. Discusses the theoretical developments in the field.

**CJ 516. Profiling (3).**

Familiarizes students with the methods used to profile violent crimes, including homicide, rape, arson and burglary. Includes scope of the problem in each of these crimes, typical investigation sequence and the role of profiling up to the trial preparation stage.

**CJ 517. Homicide Investigation (3).**

Introduces death investigations from an investigation-oriented perspective. Emphasizes crime scene investigations, mechanisms of injury and death and sex-related homicides.

**CJ 518. Criminal Justice and Crime in Film (3).**

*General education social and behavioral sciences course*. Presents films and associated popular cultural materials related to the criminal justice system and crime. The genre of the crime film has become an important component of contemporary culture. Begins with the basics

of film criticism and provides students with instruction on elements of a film genre. American and European films are considered.

**CJ 520. Drug and Alcohol Issues in Criminal Justice (3).**

Overview of issues related to substance abuse in the criminal justice system. Covers the impact of drug and alcohol dependency in society, biological and psychological factors of drug and alcohol dependency, and various treatment modalities used in the criminal justice system for drug and alcohol dependent offenders.

**CJ 521. Forensic Social Work (3).**

Cross-listed as SCWK 521. Introduction to and overview of the field of forensic social work. Content focuses on the role of social workers in forensic arenas, and the issues related to recent practice trends, relevant theoretical frameworks, collaborative team roles, and multisystem interactions. Psychosocial and legal issues are explored, with particular focus on intersections with family and social services, education, child welfare, mental health, substance abuse, criminal justice, diversity and human rights. Prerequisite(s): 6 hours of social sciences.

**CJ 522. Domestic Violence (3).**

Cross-listed as WOMS 580J, SCWK 590 and CJ 381V. Deals with the roots of domestic violence embedded in family roles, legal systems, religious beliefs, and the psychology of women, children and men. Also covers the consequences and prevention of family abuse. Includes discussion of literature and films. *Course includes diversity content.*

**CJ 530. Private Security (3).**

Provides students with a fundamental understanding of the contemporary principles of security and crime prevention. Course materials and discussions explore fundamentals of physical security, security personnel and education, loss prevention, crime prevention and zones of protection.

**CJ 540. Racial Profiling (3).**

Cross-listed as ETHS 381O. Examines racial profiling, or as it is also referred to — biased-based policing. Emphasizes racial minority citizens who believe they were stopped by police authorities because of their race. Examines how racial minority citizens experience what they believe to be racial profiling, and how they interpret and give meaning to it. Examines police perspectives on racial profiling.

**CJ 551. Workshop (1-6).**

Specialized instruction using variable formats in relevant criminal justice subjects. Repeatable for credit up to 6 credit hours.

**CJ 581. Advanced Special Topics in Criminal Justice (1-4).**

Detailed study of topics in criminal justice with particular emphasis established according to the expertise of the various instructors. Special topics are listed in course schedule with a letter after the course number (i.e. CJ 581A, CJ 581B). Not all courses are offered each semester – see the course schedule for availability. Students enroll in the special topic lettered courses, not this parent course. Prerequisite(s): CJ 191, junior, senior or graduate standing.

**CJ 581A. Women, Crime and Criminal Justice (3).**

Provides an immersive understanding of women's involvement with the criminal justice system. Divided into three major sections: (1) women's victimization and pathways into criminality; (2) the incarceration of women and gender-responsive correctional programming; and (3) women as professionals working in the field of criminal justice. *Course includes diversity content.* Prerequisite(s): CJ 191, junior, senior or graduate standing.

**CJ 581AA. Basics of Firearms, NIBIN and Toolmarks Examination (3).**

Cross-listed as FS 381AA. Firearms and toolmark identification is an applied forensic science discipline established from validated theories in the physical sciences area of material and engineering

sciences. Course introduces the identification of markings formed by the tooling processes—including firearms—most often found and used in the forensic and criminal justice field. Includes the operation of firearms, cartridges, gunshot residue analysis, powder pattern determination, bullet and fired cartridge case comparisons. Students learn the fundamentals of fired cartridge case determinations used by the National Integrated Ballistic Information Network (NIBIN) and the Integrated Ballistic Identification System (IBIS) as used by the Wichita Crime Gun Intelligence Center. Prerequisite(s): CJ 191. Pre- or corequisite(s): CJ 341 or CHEM 212.

**CJ 581B. Correctional Administration (3).**

Provides an immersive understanding of the various roles of a correctional administration. Divided into four major sections: (1) correctional leadership; (2) human resources and financial management; (3) critical incident management; and (4) recognizing/working with stakeholders. *Course includes diversity content.* Prerequisite(s): CJ 391.

**CJ 581C. Crime Analysis (3).**

Discusses a range of techniques used by crime analysts when seeking to understand recurring crime and disorder problems and patterns. These techniques are linked with underlying crime event and policing theories. Problem-oriented policing analytical techniques and techniques related to crime mapping are discussed.

**CJ 581D. Crime Mapping and ArcGIS (3).**

A hands-on course where students are introduced to geographic information systems (GIS), learning about geographic concepts and the spatial analysis of crime. ArcGIS desktop is used to develop technical skills needed for mapping, forecasting, analyzing and spatially presenting data associated with crime. The mapping of public data from the Census Bureau and municipalities is used for operationalizing criminological theory and developing class projects to explain real-world crime problems.

**CJ 581E. Combating Human Trafficking (3).**

Sex trafficking is a complex social problem with multiple contributing factors largely rooted in intersecting inequalities. Interrelated inequities in gender, sex, sexual orientation, gender identity, power, class, opportunity, education, culture, politics and race are among the social phenomena that contribute to sex trafficking/commercial sexual exploitation victimization. In this course, students examine the dynamics of sex trafficking from various feminist and political perspectives. This course covers the extent and nature of the problem; including demand, prevalence, experiences of survivors, types of sex trafficking, methods of traffickers, the role of weak social institutions, cultural dynamics, and global power dynamics. This course also examines international, federal and state legislation as well as organizational and grassroots efforts to prevent and respond to sex trafficking victimization. The aim of this course is to provide students with a holistic understanding of sex trafficking, drawing from interdisciplinary sources and presenting a variety of perspectives.

**CJ 581F. Serial Killers (3).**

Cross-listed as CJ 393. Examines the history, dynamics, causation, investigation and control of the phenomenon of serial crimes, particularly homicide. Emphasizes investigative techniques including psychological and geographic profiling.

**CJ 581I. Forensic Photography (3).**

Cross-listed as FS 381AS. Photographic documentation plays a major role in recording crime scenes and physical evidence upon its discovery. Course provides photography theory and hands-on application as applied to criminal investigations and criminalistics. Provides an understanding of theory, methods and skills needed for proper exposure, lighting techniques and composition to produce sharp, well defined, properly exposed digital images used as part of the

criminal investigative and judicial process. Students become familiar with the use of digital single-lens reflex camera equipment and develop the photographic methods to recognize, take and prepare images for investigative and/or courtroom use. Students are given the opportunity to apply learned skills while processing mock crime scenes and other photographic assignments.

**CJ 581J. Militarization of the Police (3).**

Explores the overall concept of militarization and how that relates to the police and the enforcement of the law. There is a controversial growing movement by the public that police are becoming more like military units as opposed to the traditional Norman Rockwell police officer. Addresses the public's concern about this and alternative viewpoints that suggest there are some in the study of the topic that have inflated or exaggerated this concern.

**CJ 581K. Crime Scene Reconstruction (3).**

Through text and case studies participants learn to analyze crime scene events using established principles and scientific method to define as accurately as possible what did and did not occur during the commission of major crimes. Participants develop the ability to take information from multiple investigative sources and forensic disciplines to effectively understand the events surrounding the commission of crime, as well as limitations in the investigative process. Through deductive and inductive reasoning students learn strategies for evaluating the context of scenes and items of physical evidence found within a scene in an effort to identify what occurred and in what order it occurred. Prerequisite(s): CJ 191 and CJ 341.

**CJ 581M. Criminal Mind and Behavior (3).**

Designed to provide a foundational understanding of criminal behavior from a psychological perspective. Specifically, discusses the role of psychology in explaining criminal behavior and the nature of the violent crime, as well as risk assessment with the help of case study and field practices. It also explores the potential impact of genetics, biology and developmental pathways on delinquency and criminality as these factors may offer new insight into the holistic examination of the etiology of violence. Prerequisite(s): CJ 191.

**CJ 581N. Terrestrial 3D Laser Scanning/Mapping (3).**

Cross-listed as FS 381AR. Hands-on course designed to teach the basics of High Definition 3-Dimensional Scanning (HDS) to capture millions of data points. Students use time-of-flight scan equipment to capture data and state-of-the-art software to register (stitch) the data into a 3D coordinated system of point clouds and other related products used in many professions to include geographic information systems (GIS), civil infrastructure, crime scene and accident reconstruction, building information modeling (BIM), the documentation of large industrial complexes, heritage preservation, and the detailing of archaeological excavations. Prerequisite(s): basic understanding of the Microsoft Window operating system.

**CJ 581O. Forensic 3D Laser Scanning/Mapping (3).**

Cross-listed as FS 381AV. Advanced course using high definition 3-dimensional scanning (HDS) in which students use time-of-flight scan equipment and related software to learn methods of 2D and 3D scene documentation. Examines data collection techniques and workflows particular to crime scenes including shooting incident reconstruction, anthropological and clandestine gravesite excavation documentation, as well as the types of visual deliverables which can be created to assist investigative and judicial proceedings. Prerequisite(s): CJ 581N or FS 381AR, and an understanding of the Microsoft Windows file system.

**CJ 581P. Basic Bloodstain Pattern Analysis (3).**

Cross-listed as FS 381CB. Designed for those interested in becoming investigators, crime scene technicians, forensic technicians and others

involved in criminal and medical-legal investigations and crime scene analysis. Provides a fundamental knowledge of the discipline of bloodstain pattern analysis. Students learn the basic principles of bloodstain pattern analysis and the practical application of the discipline in criminal casework. Provides the foundation of bloodstain pattern analysis and is a prerequisite to other advanced bloodstain training taught in the criminal justice system; this course is not intended to create an "instant" expert. Prerequisite(s): CJ 191.

**CJ 581Q. Forensic Victimology (3).**

Introduces students to the scientific study of crime victims as it relates to the investigation and prosecution of (violent) crimes. Examines the intersection of crime victimization, forensic evidence and criminal procedure with particular attention to the physical and psychological consequences of violent victimization, victim-centered/trauma-informed investigation and DNA/medical evidence. As part of a thorough understanding of forensic victimology, the role of various professionals (e.g., forensic nurses, forensic scientists, medical examiners/coroners) and victim services are explored. Prerequisite(s): CJ 191.

**CJ 581R. Aspects of Interview and Interrogation Techniques (3).**

Provides an introduction and overview of common interview methods used within modern Western societies. Through guest speakers and article reviews, the course analyzes the strengths and weaknesses of the various interview strategies. By examination and review of conventional methods, it determines which approach is most likely to produce the most factual, truthful and detailed information within a legal and admissible format. Prerequisite(s): CJ 191.

**CJ 581S. Victims and Victim Services (3).**

Examines the nature of violent victimization as well as services and treatment options available for crime victims. Topics include stress and coping models for victims, crisis intervention, child abuse, intimate partner violence, sexual violence, homicide, elder abuse and mass violence. As part of understanding the interface between victims and the criminal justice system, victimization patterns, victim-offender relationships, victim interaction with law enforcement and the victim's role in court are discussed.

**CJ 581U. Gangs: Trafficking in Violence (3).**

Introduces the student to a basic understanding of the historical developments, origins, philosophy, activities and current trends of street/prison gangs across the United States, and specifically to the Wichita, Kansas area. Explores areas of violence, criminal activity, recruitment, identifiers, tattoos, clothing, graffiti, etc. associated with street/prison gangs. Additionally, the role of the police, prosecution, prison system, and the community in preventing, intervening, and suppressing street/prison gangs is discussed, emphasizing the law enforcement perspective.

**CJ 581V. Investigating Crimes Perpetrated Against Women (3).**

Examines various forms of the criminal victimization of women such as domestic violence, stalking, sexual assault and homicide. Studies the role of law enforcement in investigating these crimes and the role other agencies play in the investigation and prosecution. Covers relevant statutory definitions, legal developments, theoretical definitions and criminal justice responses. Emphasizes law enforcement policy and procedures, techniques and resources used. Topics include victim-centered and trauma-informed approaches, lethality assessment protocol, investigative strategy including evidence collection and analysis and case prosecution, protection orders, prosecution preparation, and integration of victim service providers.

**CJ 581W. Terrorism (3).**

Cross-listed as HLS 420. Introduces students to the phenomena of contemporary terrorism and extremism. Emphasizes extremism

as a foundation for terrorist behavior, types of terrorism, and how governments and law enforcement agencies respond to terrorism. Particular emphasis is on domestic and home-grown terrorism. Introduces theoretical approaches to the study of terrorism. Weaves a thread of extremist literature and perspectives throughout the semester. Highlights the role of law enforcement and other public administrative agencies.

**CJ 581X. The Psychology of Homicide (3).**

This course is an advanced review of trends, theories and different aspects of homicide and its roots in the criminal mind. Trends for U.S. homicides, as well as global trends, are a major tool in understanding this extreme form of violence. The course includes a brief review of etiology of violence within the mind. Major forms of homicide receive some attention.

**CJ 581Z. Cold Case Investigations-BTK C (3).**

Uses case studies to demonstrate techniques used to address the particular challenge of older unsolved homicide cases that are commonly referred to as "cold cases." Presents cases that have been solved through applying modern scientific capabilities to older cases.

**CJ 593. Crime Causation and Criminal Justice Policy (3).**

*General education social and behavioral sciences course.* Introduces theoretical issues in criminal justice. Primary emphasis is the etiology of criminal and delinquent activity and the response of the criminal justice system to such behavior. Discusses the significant contributions of outstanding criminologists, as well as elaborating on the application of these perspectives to criminal justice agencies. Prerequisite(s): CJ 191.

**CJ 598. Contemporary Issues in Criminal Justice (3).**

Capstone course for criminal justice majors nearing the completion of the baccalaureate degree. Explores current criminal justice issues and integrates material learned in the criminal justice curriculum. Covers theories of crime and delinquency; origins and development of criminal law and procedure; functions and operations of criminal justice agencies in America, including the response to juvenile offenders; prevention of crime and delinquency; privatization in corrections and policing; the nature, meaning and purpose of criminal punishment; the nature and impact of criminal justice policy; and the relationship between criminal justice and human diversity. For undergraduate criminal justice majors only. Prerequisite(s): CJ 191, 315, 320, 360, 391, 392, 394, 407, 593, senior standing.

**CJ 600. Forensic Anthropology (3).**

Cross-listed as ANTH 600. Course focus is on recovery, analysis and identification of human and non-human remains in the area of criminal investigation. Includes lecture and case study presentations, hands-on lab analysis and investigation of human skeletal material, forensic profile estimation, and investigation of trauma and assessment of manner of death; forensic anthropology crime scene survey, mapping and documentation. Covers procedures of collection, recording, stabilization and documentation and anthropological identification. Prerequisite(s): ANTH 101 and ANTH 557 or equivalent is required for all Anthropology, Forensic Science and other non-criminal justice students. All criminal justice students must complete ANTH 101 and CJ 191 prior to taking CJ 600, and ANTH 557 is highly recommended.

**CJ 601. Digital Investigations (3).**

Discusses how computers play a role in both crime and criminal investigations. Although digital investigation is usually thought to be associated with cybercrimes, the class does not necessarily focus solely on cybercrimes. With today's technologies, all crimes could involve digital evidence and hence require digital investigation. Students learn about the methods that criminals may adopt as well as the methods that investigators may use. Some coursework requires more-than-minimum

computer knowledge and operation of computer software. Students need to have a functional computer and access to the internet.

**CJ 610. Correctional Counseling (3).**

Analyzes the role of a correctional counselor. Emphasizes current practices in community-based and institutional correctional counseling. Discusses application of theories of counseling which are widely used in correctional settings, rehabilitative programs and special needs of offenders.

**CJ 641. Forensic Psychiatry (3).**

Analyzes the role of psychiatry in the criminal justice process. Introduces the student to concepts and procedures of forensic psychiatry. Prerequisite(s): 15 credit hours of criminal justice courses including CJ 191, or junior, senior or graduate standing.

**CJ 652. Juvenile Justice and Social Policy (3).**

*General education social and behavioral sciences course.* Analyzes decision-making processes in juvenile justice and the content of juvenile law and Supreme Court decisions affecting juvenile justice, and selected problems in juvenile justice. Reviews the juvenile justice reform movement. Covers delinquency prevention and control, and ethical issues associated with juvenile justice. Prerequisite(s): CJ 191.

**CJ 692. Community Policing (3).**

Reviews the various models and strategies of community policing. Examines key concepts such as problem-oriented policing, crime prevention, community relations, empowering the community and the integration of these concepts into community policing. Prerequisite(s): 15 credit hours of criminal justice courses including CJ 191, or junior, senior or graduate standing.

**CJ 781. Cooperative Education (1-5).**

Provides a field placement that integrates theory with a planned and supervised professional experience designed to complement and enhance the student's academic program. Students work with a faculty member in the formulation and completion of an academic project related to the field experience. The cooperative education experience must be an integral part of the student's graduate program. Individualized programs must be formulated in consultation with, and approved by, the cooperative education coordinator. Open only to CJ graduate students. Repeatable for credit. No more than 6 credit hours may be counted toward a plan of study. Enrollment limited to 4 credit hours per semester.

**CJ 782. Workshop in Criminal Justice (3-6).**

Prerequisite(s): CJ 191, instructor's consent.

**CJ 783. Advanced Special Topics in Criminal Justice (1-4).**

Detailed study of topics in criminal justice with particular emphasis established according to the expertise of the various instructors. Prerequisite(s): CJ 191, junior, senior or graduate standing.

**CJ 796. Criminal Typologies (3).**

Introduces an area of criminology that categorizes large amounts of information into mutually exclusive categories. Analyzes the various categories of crimes, the situations under which they are committed, the offenders who commit them and the victims of those offenses. Examines the offenses of homicide, rape/sexual assault, aggravated assault, robbery/armed robbery, burglary, auto theft/carjacking, prostitution, drugs, gambling, cybercrime, white collar crime/occupational crime, arson and hate crimes.

**CJ 802. Quantitative Methods for Public Sector Professionals (3).**

Cross-listed as AGE 802. Uses standard microcomputer statistical software and analysis to introduce statistics and quantitative analysis for organizational and policy decision making. Emphasizes the application of statistics and writing with quantitative evidence to real public sector

policy questions. Assumes little or no background in statistics and software applications.

**CJ 817. Crime in Popular Culture (3).**

Analyzes film as an expression of popular culture; focuses on films dealing with the subject of crime. Particular attention to portrayal of violence and the images of women. Discusses the images of police, correctional officers and other criminal justice professionals.

**CJ 850. Workshop (1-6).**

Specialized instruction using variable formats in relevant criminal justice subjects. Repeatable for credit up to 6 credit hours. Restricted to graduate students.

**CJ 853. Crime Prevention through Environmental Design (3).**

Crime Prevention Through Environmental Design (CPTED) is a set of design principles used to discourage crime. The proper design and effective use of the built environment can lead to a reduction in the fear of crime and the incidence of crime, and to an improvement in the quality of life. Provides information on how to develop and implement CPTED strategies to enhance community safety and security.

**CJ 855. Seminar on Juvenile Justice (3).**

Analyzes the criminal justice process as related to the youthful offender. Emphasizes functional components such as training of corrections personnel, community coordination for delinquency prevention and control, police-school relations, and ethical, administrative and operational aspects of juvenile justice agencies.

**CJ 861. Police Administration (3).**

Comparative survey and analysis of administrative philosophy, problems, procedures, organizations and functions of effective agency organization. Considers administrative skills related to operations and personnel.

**CJ 873. Advanced Criminal Law (3).**

Presents students with a greater understanding of the complex structure of penal codes in the United States. Traditional issues covered in a criminal law course, such as actus reus (the act requirement), mens rea (the mental element), and punishment philosophy are addressed. Challenges students to integrate these elements into a workable penal code that fits into the larger framework of the purposes that punishment serves.

**CJ 874. Qualitative Methods (3).**

Practical introduction to qualitative research methods and their applicability in the social sciences. Provides an overview of the theoretical and philosophical perspectives informing qualitative research. Methods (design, data collection, data analysis and reporting) used in qualitative research for criminal justice and criminology are examined and applied.

**CJ 882. Individual Directed Study in Criminal Justice (1-6).**

Faculty-directed readings and/or research in special areas of interest in the field of criminal justice. Prerequisite(s): graduate coordinator's and instructor's consent.

**CJ 893. Seminar on the Application of Criminological Theory (3).**

In-depth analysis of the major theories of criminology and of their importance to the criminal justice process. Emphasizes the student's development of a consistent and valid frame of reference.

**CJ 894. Proseminar in Criminal Justice (3).**

Familiarizes students with critical issues facing the criminal justice system. Reviews issues which face law enforcement, the courts, corrections and the juvenile justice system, considering the integrity of the entire criminal justice system.

**CJ 895. Seminar in Policing (3).**

Familiarizes students with such law enforcement topics as the historical development of policing, the police role, occupational socialization and problems of police work.

**CJ 896. Seminar in Corrections (3).**

Focuses on the major issues and dilemmas facing modern corrections in America. Includes both institutional programs such as prisons and jails, as well as alternatives in community settings, such as diversion, probation, parole, halfway houses, work release centers and community corrections.

**CJ 897. Advanced Research Methods (3).**

Cross-listed as AGE 897. Advanced research course; studies the selection and formulation of research problems, research design, hypothesis generation, scale construction, sampling procedures, and data analysis and interpretation. Fulfills the university's professional and scholarly integrity training requirement covering research misconduct, publication practices and responsible authorship, conflict of interest and commitment, ethical issues in data acquisition, management, sharing and ownership.

**CJ 898. Applied Research Paper (1-3).**

Original research project under a faculty member's direction. Project requires a written report. Must be an individual effort, not a group project. Primarily for graduate students who wish to provide evidence of writing and research ability in order to pursue further graduate education. Prerequisite(s): graduate-level research methods class.

**CJ 900. Thesis (1-6).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for credit. Prerequisite(s): graduate advisor's consent.

## **CLES - Counseling, Educational Leadership, Educational and School Psychology**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**CLES 511. Introduction to School Psychology (3).**

Cross-listed as PSY 511. Introduces students to a career in school psychology. School psychologists work in schools to solve students' academic and behavioral problems through consultation, assessment and intervention. Course examines the roles and functions of school psychologists, the methods used to address students' psychoeducational needs, and the school and community systems within which they operate. *Course includes diversity content.*

**CLES 512. Exploring Concepts and Careers in Educational Psychology (3).**

Cross-listed as PSY 512. Explores the field of educational psychology and its application in different areas, such as teaching, learning, coaching, training, assessment and research. Introduces students to the wide variety of careers in educational psychology. Also introduces students to the practical application of educational psychology by considering topics such as cognition (problem solving, memory, decision making), behavioral learning principles, motivation, human development, curriculum development, assessment, basic research design, and the role of research. *Course includes diversity content.*

**CLES 710BA. Badge: Mental Health Supervision (1).**

Provides training in the supervision of mental health practitioners in the State of Kansas. Topics include: the roles and functions of the

clinical supervisor; models of clinical supervision; mental health related professional development; methods and techniques in clinical supervision; supervisor relationship issues; cultural issues in clinical supervision; group supervision; legal and ethical issues in clinical supervision; and evaluation of supervisee competence and the supervision process. For graduate credit only. Graded Bg/NBg. *Course includes diversity content.*

**CLES 715. Concepts and Principles of Behavior Analysis (3).**

Cross-listed as CI 715. Covers the fundamental concepts and principles of applied behavior analysis. Everyday behavior is examined as a part of the natural world, and behavior change is explained by behavioral principles derived from scientific research. Students have opportunities to demonstrate their understanding of the procedures that derive from behavioral principles and get some practice in implementing those procedures. School psychology students: no grade below B- (2.750) will count toward the degree.

**CLES 721. Fundamental Elements in Behavior Change and Specific Behavior Change Procedures (3).**

Cross-listed as CI 721. Introduces fundamental elements of behavior change and specific behavior change procedures. The objectives of this course are (1) to increase student understanding of behaviors change and (2) for students to demonstrate their ability to apply behavior change techniques. Prerequisite(s): CLES 715 or CI 715.

**CLES 723. Single Subject Design (3).**

Cross-listed as CI 723. Introductory level course concentrating on single subject data designs, visual inspection and inference of data, and statistical analysis for educational and behavioral interventions and data collection processes.

**CLES 750. Workshops in Education (1-6).**

Intensive study of topics related to education. Differing topics are denoted by a letter following the course number (i.e., 750A, 750C, etc.).

**CLES 750AB. Clinical Foundations in Gender and Sexual Diversity (3).**

Supports the student-clinician in building foundational competencies relative to diversities of sexuality and gender. Students work interactively to connect critical exploration of relevant theory and research with their impact and utility across a range of LGBTQ-centering clinical contexts. In order to facilitate the development of readily applicable skills, self-reflection, group discussion, role play, and direct engagement with community stakeholders are core learning components.

**CLES 750AC. Theories of Suicidology for Counselors (3).**

Introduces theories of suicidology, including historical and modern theories. Uses theoretical foundations and related research to prepare future helpers in understanding, assessing, and working with clients presenting with suicidal ideation from an empirically informed perspective. Discusses complexity and intimacy of suicidality and focuses on integrating theories of suicidology within applied counseling practice.

**CLES 750AD. Introduction to Treating Eating Disorders (3).**

Provides an introduction to the characteristics and criteria associated with a variety of forms of disordered eating. Covers anorexia nervosa, bulimia, binge eating disorders, and overeating, among others, and overview key features of their causes, presentation and treatment. Special attention is dedicated to understanding eating disorders in women, men, athletes and multicultural populations. Attention is given to critical factors in the development and maintenance of eating disorders. These include personality features and family characteristics, as well as sexual orientation, sociocultural, genetic and family influences. Further, the medical and physiological consequences of

eating disorders are covered. Treatment and prevention strategies for those with eating disorders are also explored.

**CLES 750AE. Counseling Individuals with Disabilities (3).**

Familiarizes counselors with issues relevant to working with individuals with disabilities. Presents counseling techniques and modalities. Uses video, case studies, coached clients, and a variety of hands-on exercises to help students better understand the challenges and opportunities faced by individuals with disabilities.

**CLES 750AF. Psychosocial Aspects of Sports Injury, Illness and Rehabilitation (3).**

Cross-listed as HPS 716. Explores the psychosocial factors related to sport injury and illness and their effects on the rehabilitation process, mostly connected to sports and physical culture. Offers an opportunity to develop critical thinking and applicable skills as students consider the place of injury, illness and pain within the social and psychological worlds of sport. Explores the mechanisms through which psychosocial factors influence sports injury, illness, understanding, prevention, treatment and rehabilitation outcomes.

**CLES 750AG. Counseling Children & Adolescents Through Grief and Loss (3).**

Helps counselors and educators better understand children and adolescents who have experienced many types of loss. Children and adolescents tend to experience loss and express grief differently from adults. Developmentally sound approaches to assisting children and adolescents are presented.

**CLES 750AI. Exploring The Emotional Effects of Music (1).**

Have you ever heard music that transported you to another time and place and elicited an emotional response? This workshop will explore the foundations of music and its potential use in therapeutic contexts.

**CLES 750AJ. Workshops in Education: IS NeuroFeedback and the Therapeutic Relationship (3).**

Examines the clinical aspects of neurofeedback as pertaining to individual counseling. Goes through extensive examination of applied research studies for counseling members with ADHD, anxiety, depression and other DSM classified disorders. Examines practitioners guide to incorporating neurofeedback into their counseling practice.

**CLES 750AK. Counseling Latina/o/x: A Cosmic Race (3).**

Addresses the social, racial, political, oppression and diversity among different Latino groups; and demographic issues of Latinos in the United States. Mental health professionals must observe and understand the experiences, cognitions and behaviors of Latinos from a multicultural perspective as an alternative to the current one size fit-all approach to individual and group counseling and therapy. The principles of liberatory psychology are described and employed as a way of working in individual and group settings with Latina/o/x clients with an emphasis in problematization -> reflection -> critical consciousness -> action and/or change. *Course includes diversity content.*

**CLES 750AM. Enneagram: Personality in Counseling (3).**

Examines the Enneagram Personality Typology and its use in counseling practice. The Enneagram considers the various worldviews that people hold and ways in which people can grow in their awareness. It also provides insight into how people respond under stress. Finally, it describes the behaviors of people from various types who undergo chronic stress and develop mental health disorders.

**CLES 750B. Neurobiology of Play Therapy: How to Improve Our Practice (1-6).**

Reviews basic brain development principles, the impact of social and emotional trauma on the developing brain, and treatment options consistent with the child's current brain functioning through the use of

developmental, symptom, and functional history interviews designed to assist the play therapist in appropriate intervention strategies.

**CLES 750C. Expressive Arts in Counseling (3).**

Workshop provides an introduction to the field of art therapy, its history, approaches and applications in working with children and adolescents. The expressive arts — visual arts, movement, drama, music and writing — offer countless ways to promote the academic, career and personal/social development of students, which are goals of a comprehensive school counseling program. Workshop is customized for educators and counselors, as well as education and counseling students who are interested in strategies to incorporate art therapy into their practice or classroom but is open to anyone seeking an introduction to the field of art therapy. Participants experience hands-on how the creative process of art making can be used for self-care and with students. Participants are introduced to program models in school districts in which school counselors and art therapists work together to address the needs of students with social, emotional, academic and/or behavioral challenges. Please wear casual clothes for art making.

**CLES 750D. Using Art to Integrate Social Emotional Learning (0.5).**

Based on practice and research within the mental health field of art therapy, learn how arts integration across academic subjects increases social emotional learning in the classroom with activities that school counselors and educators can adapt for a range of ages and a variety of academic, career and personal/social counseling goals. Introduces the field of art therapy, its history, approaches and applications in meeting Kansas Social, Emotional, and Character Development Model Standards and Common Core. Participants experience how an expressive arts project can facilitate student empowerment through self-expression, and how a shared art experience can promote community building. Obtain useful tools to build integrated lesson plans for the classroom.

**CLES 750E. Art Therapy in Schools: An Introduction (0.5).**

Introduces the field of art therapy, its history, approaches and applications in working with children and adolescents. The expressive arts — visual arts, movement, drama, music and writing — offer countless ways to promote the academic, career and personal/social development of students, which are goals of a comprehensive school counseling program. Customized for educators and counselors, as well as education and counseling students who are interested in strategies to incorporate art therapy into their practice or classroom but is open to anyone seeking an introduction to the field of art therapy. Participants experience hands-on how the creative process of art making can be used for self-care and with students. Participants are introduced to program models in school districts in which school counselors and art therapists work together to address the needs of students with social, emotional, academic and/or behavioral challenges. Please wear casual clothes for art making.

**CLES 750F. Understanding Students Who Have Experienced Trauma and Neglect (0.5).**

Introduction to trauma. Includes different types of trauma and some general impacts of trauma. In addition, students learn about the Adverse Childhood Experience (ACE) study; understand how developmental trauma can impact students socially, emotionally and academically; understand some basic Neurosequential Model in Education (NME) concepts, including how the therapy can be a lens through which to view children who are victims of trauma. Students apply NME concepts in order to develop interventions and supports in the classroom.

**CLES 750M. Mindfulness and Acceptance in Therapy (1-3).**

Teach clients how to reboot their brains by using mindfulness and acceptance techniques with individuals, couples and families.

**CLES 750N. Introduction to Educational Psychology (3).**

Introduces students to the field of educational psychology and its application in different areas, such as teaching, learning, coaching, training and assessment. Introduces students to the practical application of educational psychology by considering topics such as the following: cognition (problem solving, memory, decision making), behavioral learning principles, motivation, human development, curriculum development, assessment, basic research design, and the role of research in educational psychology. While these topics are considered, the course also introduces students to careers in educational psychology; many educational psychologists work in K-12 schools, but many also work in higher education, health professions, program evaluation, instructional design (including online instructional design), industry, human resources, military settings, research, counseling, and sports — in any field requiring training, teaching and learning, motivation, assessment or research.

**CLES 750O. Introduction to School Psychology (3).**

Introduces students to the opportunity of a career in school psychology. School psychologists work in schools to solve students' academic and behavioral problems through consultation, assessment and intervention. Examines the roles and functions of school psychologists, the methods they use to address students' psychoeducational needs, and the school and community systems within which they operate.

**CLES 750P. Counseling Children and Adolescents (3).**

Prepares counselors to address the specific needs of children and adolescents, with emphasis on developmental needs, specific therapeutic interventions, and common emotional issues. Counseling techniques and treatment planning are included.

**CLES 750R. Advanced Issues in Psychopathology and the DSM (3).**

Designed to assist students in further understanding the diagnoses in the DSM. Students distinguish among similar diagnoses and recognize how they manifest in clients in both community and inpatient settings. Students acquire skills in differential diagnosis and treatment planning, and recognize personality traits and learned behaviors which impact client outcomes. Designed to help students to understand mental health disorders through a variety of frameworks beyond the introductory level.

**CLES 750S. Social Emotional Learning Across the K-12 Curriculum (3).**

While moving towards becoming responsive schools staffed with responsive educators, educators must embrace and fully understand the Social and Emotional standards and look for opportunities to incorporate them into the curriculum in ways that are meaningful for students and seamless for educators. In this course, teachers and other educators explore and apply nonacademic standards to prepare students for success in the ever changing 21st century society.

**CLES 750T. Understanding Students Living in Poverty (1).**

Workshop explores key definitions surrounding the dynamics of poverty and ways to tailor programs to meet students and families where they are. Provides educators with a real-life simulation of poverty situations and gives them an opportunity to discuss their feelings as they navigate the academic life of a student living in poverty.

**CLES 750U. KCA Mental Health Drive In (0.5).**

Encompasses four content areas: (1) Enhancing emotion intelligence effective self care for mental health professionals includes definition of emotional intelligence (EI), increasing emotional intelligence and awareness, and providing operating instructions for optimal human psychological functioning. (2) Strategies for supporting compassionate classrooms and building staff resilience includes compassionate

instruction and discipline in the classroom; building a framework for a compassionate curriculum, and fostering resilience to avoid burnout.

(3) Making clinical diagnoses using the DSM 5 – assists counselors and other mental health workers to increase their knowledge of the diagnostic criteria in the DSM 5 and improve their skills in diagnosis and treatment planning. (4) Trauma based play therapy – introduces participants to trauma-informed play therapy TM, an evidence-based and neurodevelopmentally appropriate method for working with traumatized children. A final reflective paper is due one week following the course.

**CLES 750V. Social Work in Sports (3).**

Cross-listed as SCWK 611Q. Explores the role of social work practice in serving the holistic needs of an athlete while understanding their involvement in the culture of sport. Explores the vulnerabilities and resiliencies of individuals who participate in youth, secondary, collegiate and professional sports. Provides a foundation for professionals interested in social work practice in sporting environments and begins to prepare social workers to assist athletes at all levels and in various settings.

**CLES 750W. Psychopharmacology (1-3).**

Surveys basic neuropharmacology, the effects of various psychotropic drugs, and the actions of drugs used to treat mental disorders. Examines the actions of specific drugs and their effects on behavior and their uses in biological psychiatry. Basic principles of neuropharmacology are covered.

**CLES 750X. KASB BOLD Program (1-6).**

Individuals in this session attend Kansas Association of School Board professional sessions as provided by the organization and complete nondegree graduate credit course requirements.

**CLES 750Y. USA Seminars (1-6).**

Individuals in this session attend USA professional sessions as provided by the organization and complete nondegree graduate credit course requirements.

**CLES 750Z. KSDE Annual Conference (1-3).**

Individuals in this session attend KSDE Annual Conference professional sessions as provided by the organization and complete nondegree graduate credit course requirements.

**CLES 801. Introduction to Educational Research (3).**

Includes (1) the nature of research methodologies, (2) the preparation of research reports, (3) critical reading of research, and (4) ethics and integrity in conducting and reporting research. Fulfills the university's professional and scholarly integrity training requirement covering research misconduct, publication practices and responsible authorship, conflict of interest and commitment, ethical issues in data acquisition, management, sharing and ownership. Prerequisite(s): graduate standing.

**CLES 802. Theories of Human Development for Counseling Professionals (3).**

Describes what developmental theories are, what they do, where they come from, how they work and how they are used to explain human nature. Uses theoretical assumptions and related research to systematically evaluate developmental theories in terms of their scientific worthiness and their ability to address characteristics of human development. Focuses on those theories which helped shape the way we currently view human development as well as significant new perspectives which may shape the way we view it in the future. *Course includes diversity content.* Prerequisite(s): graduate standing, counseling program status, or instructor's consent.

**CLES 805. Professional and Ethical Issues in Clinical Mental Health Counseling (3).**

Focuses on legal and ethical issues confronting community agency, mental health, and rehabilitation counselors. Students engage in dialog throughout the course and work in peer consultation teams to identify and resolve ethical dilemmas and adopt sound ethical and professional practices. Current topics and needs of special populations (e.g., multicultural issues, competence and malpractice, consultation and supervision) are also explored. *Course includes diversity content.*

**CLES 806. Foundations of Clinical Mental Health Counseling (3).**

Designed for persons pursuing careers in mental health counseling. Topics addressed include the history of mental counseling, an analysis of the current status of the mental health delivery system, and a futuristic look at mental health services. Examines professional organizations, preparation standards, and credentials relevant to the practice of clinical mental health counseling; models and principles of clinical supervision; consultation; management of mental health services and programs, including areas such as administration, finance, managed care and accountability; and ethical and legal standards in clinical mental health counseling. The legal and societal bases of clinical mental health services are explored within a social justice framework. *Course includes diversity content.*

**CLES 810. Research and Program Evaluation for Counselors (3).**

Focuses on introducing students to important concepts related to research, statistics and program evaluation for counselors. Designed to provide counseling students a foundation that supports the counseling practitioner model. Fulfills the university's professional and scholarly integrity requirement covering research misconduct, publication practices and responsible authorship, conflict of interest and commitment, and ethical issues in data acquisition, management, sharing and ownership.

**CLES 812. Counseling Student Athletes (3).**

Examines mental health issues that student athletes may encounter such as anxiety, depression, suicidality, eating, body image, substance abuse, and behavioral disorders. Develops effective strategies to address these issues. The impact of culture, gender, SES, sexual orientation, and disability status on student athletes' mental health is also explored. *Course includes diversity content.*

**CLES 813. Student Athlete Identity Development (3).**

Explores the identity of student athletes including: what it means to be a student athlete; how multicultural factors influence student athlete development; how identity impacts career readiness; and the impact of exit from sport due to injury, retirement or deselection on an athlete's identity. *Course includes diversity content.*

**CLES 826. Clinical Skills in Counseling (3).**

Overview of counseling assessment, documentation, case management and treatment plans in the mental health and substance abuse settings. *Course includes diversity content.* Prerequisite(s): CESP 824.

**CLES 855. Advanced Addiction Counseling (3).**

Overview of screening, assessment, diagnosis and counseling techniques used in the treatment of co-occurring mental health and substance use disorders for counselors in community agencies. Taught as an online course as well as a hybrid course with online assignments and tests. For the online course, class member interaction occurs through a discussion board. *Course includes diversity content.* Prerequisite(s): CESP 847.

**CLES 860. Clinical Mental Health Counseling Practicum (3).**

Supervised clinical mental health counseling experience. Minimum of 100 hours of professional counseling service that includes a minimum of 40 hours of direct client contact experience in counseling, with the remainder of hours (60) in indirect client service. CLES 860 builds on

the skills learned and practiced in CESP 824 and requires a minimum grade of B in order to move on to the internship course (CESP 949 or CLES 952). Prerequisite(s): CESP 824 with a grade of B or better within the last 12 months, CESP 803 and departmental consent.

**CLES 861. Behavioral, Social and Emotional Assessment (3).**

Focuses on basic concepts and methods of assessing behavioral, social and emotional functioning of children and adolescents. Introduces students to varied theoretical approaches to understanding personality and resultant social-emotional functioning. Assessment methods studied include interviewing, observation, inventory instruments, behavior rating scales, and functional behavioral assessment. Includes supervised experience. No grade below B- (2.750) will count toward the degree. *Course includes diversity content.* Prerequisite(s): CESP 858.

**CLES 862. Practicum in Addiction Counseling (3).**

Supervised addiction counseling experience. A minimum of 100 hours of professional addiction counseling service that includes a minimum of 40 hours of direct client contact experience in counseling, with the remainder of the hours (60) in indirect client service. CLES 862 builds on the skills learned and practiced in CESP 824. Minimum grade in CLES 862 is a B in order to move on to the internship course (CLES 952). *Course includes diversity content.* Prerequisite(s): CESP 824 with a grade of B or better within the last 12 months, and CESP 803, and departmental consent.

**CLES 871. Foundations of Higher Education (3).**

Provides a comprehensive examination of the foundations of higher education in the United States. This examination focuses on critically interrogating the function of higher education with an extra focus on the historical-cultural issues as it relates to education within the context of the United States. Connecting history to current practice, students are equipped to critically examine the roots of higher education which in turn aids them in having a historical-critical lens with current issues as it relates to the foundations of higher education.

**CLES 872. Finance and Human Resources in Colleges and Universities (3).**

Provides a basic overview of administrative functions related to funding, allocation and management of human and fiscal resources in higher education. Current practices, issues and challenges related to finance and human resource management in college and university settings are explored. Emphasis is placed on identifying meaning and implications of practices, and applying learning to practical situations as found in the field.

**CLES 873. College Student Development and the Campus Environment (3).**

Explores the history, meaning and implications of student development theories. Emphasizes typologies, person-environment, psycho-social and cognitive theories, and the diversity of student populations served by student affairs. Special focus on the application of theory and how it may provide a springboard for practice and further discovery.

**CLES 874. Legal and Ethical Issues in Higher Education (2-3).**

Introduces students to the historical and contemporary legal issues affecting higher education in the United States. Designed to touch upon the multiple perspectives and various legal aspects of higher education, as well as to introduce a wide range of current issues. Intended for students in graduate programs emphasizing higher education as well as graduate students throughout the university interested in an introduction to the legal issues that have had an impact on the field of higher education. Students in the MED higher education student affairs program must take the course as 2 credit hours. Prerequisite(s): instructor's consent for the two (2) credit hour version of this course; if students take this course as part of the HESA certificate or other programs, the course must be taken at (3) credit hours.

**CLES 875. Practicum in Higher Education (3).**

Provides the student with an opportunity for observation and participation in a wide range of higher education leadership professional activities in an approved college setting, and as a means of integrating didactic experiences and information with actual experience under the supervision of qualified practitioners. Prerequisite(s): any two of CLES 871, 873, 874, and CESP 811.

**CLES 876. Social Justice Issues in Higher Education (3).**

Critically examines inclusion, diversity and equity in higher education. The various identities of students are reviewed and used in analyzing current trends and challenges related to the pursuit of postsecondary education the United States. *Course includes diversity content.*

**CLES 877. Capstone: Current Issues in Higher Education and Student Affairs (2).**

In-depth and contemporary exploration of critical issues, trends and forces facing and influencing higher education. Addresses the ways in which contemporary institutions respond to critical issues and challenges, as they are set within and often against the dynamic context of social, political and economic forces. To be highly informed and objective, student affairs (and higher education) professionals need to understand the complexities inherent in higher education in the United States. Course goals revolve around helping students comprehend conflicting perspectives related to relevant issues and to develop a critical perspective needed to analyze them. Also emphasizes developing professional identities as student affairs (or higher education) advocates.

**CLES 878. Foundations of Student Affairs (2).**

This course is a part of the Master of Education in educational psychology - higher education/student affairs program. This course provides an introduction into the field of student affairs within various institutional contexts. Through a critical examination of the historical, theoretical and philosophical contexts, students gain the base knowledge necessary for a career in student affairs.

**CLES 879. Administration and Governance in Higher Education (3).**

This course is a part of the administration and leadership emphasis within the higher education/student affairs program. The aim of this course is to explore and generate greater understanding of the culture of organization and administration in higher education. Through an exploration of theoretical and conceptual frameworks discussed in this course, students are equipped to identify organizational behaviors through various institutional contexts, external factors, norms and cultures.

**CLES 880. Practitioner Wellness and Effectiveness (3).**

This course is a part of the student affairs practitioner wellness and effectiveness track within the higher education/student affairs program. This course provides an introduction into the field of practitioner wellness and effectiveness through the context of student affairs work. Through an examination of various institutional types, students within the course gain a deep understanding of issues that could present challenges in their work life as practitioners in student affairs, and learn effective techniques to protect their mental and physical wellbeing.

**CLES 881. Leadership in Higher Education (3).**

This course is intended to give students an understanding of the various theories that inform leadership education and practice. It is a part of the administration and leadership emphasis within the higher education/student affairs program. In this course, students are invited to see leadership as a discipline that transcends a functional area and instead serves as a framework to lead and guide their work within higher education and beyond. Participants in this course are asked to not only look at the leadership theories presented to formulate their approach as

educators, but also how they see these theories and how they move and engage with the world around them.

**CLES 882. Crisis Management and Prevention in Higher Education (3).**

The focus for the course is upon the various crises faced by colleges and universities and the planning, prevention, response and recovery that institutions and their leaders can undertake. Ranging from student protests to weather-related disasters, crisis situations often threaten college campuses. When a campus crisis occurs, institutional leaders are expected to respond and direct the process of recovery. This course merges literature on crisis management with that on campus leadership. Students examine and discuss documented cases of campus leadership in times of crisis, as well as best practices in campus crisis management.

**CLES 901. Proseminar I (3).**

Provides new doctoral students an introduction to the field of educational psychology and doctoral studies as a whole. Also designed to introduce students to the CLES faculty, and to help them prepare for program benchmarks. Finally, helps prepare students to take part in doctoral-level discussions of complex educational psychology concepts. Prerequisite(s): admission to EdD program or instructor's consent.

**CLES 902. Psychology of Leadership, Persuasion and Influence (3).**

Overview of psychological processes involved in leadership development and their impact on human behavior and performance, including the historical background, evolving conceptions and perspectives with social context and authority-contingencies, their influences on how people view and wield leadership and persuasive influence, and how these conceptions inform everyday reality, institutional/educational and academic practice. Prerequisite(s): admission to EdD program or instructor's consent.

**CLES 903. Beliefs About Knowledge and Learning (3).**

Overview of beliefs about the nature of knowledge and learning, including the historical background, evolving conceptions, and their influences on how teachers teach and test. Prerequisite(s): admission to EdD program or instructor's consent.

**CLES 904. Psychology of Language and Discourse Processes (3).**

Overview of psychological processes involved in language/discourse comprehension, production and development, including the historical background, evolving conceptions, and their influences on how people view and study language and discourse, and how these psycholinguistic conceptions inform curriculum, classroom and professional practice. Prerequisite(s): admission to EdD program or instructor's consent.

**CLES 905. Research Methods and Analysis: Quantitative (3).**

Helps students develop an understanding of quantitative inquiry methods and designs. Course framework is built on the collection of data. This data is the tool with which students build a research study. Students determine the correct research methods, analyze and write up the results in a scholarly way. Prerequisite(s): admission to EdD program or instructor's consent.

**CLES 906. Research Methods and Analysis: Naturalistic (3).**

Helps students develop an understanding of naturalistic inquiry methods and designs. Also focuses on analysis of qualitative data. Prerequisite(s): admission to EdD program or instructor's consent.

**CLES 907. Cognition and Instruction (3).**

Overview of the study of cognition and an in-depth look at the theories and findings that are most relevant for educational psychology. Prerequisite(s): admission to EdD program or instructor's consent.

**CLES 908. Proseminar II (5).**

Weekly seminar for discussing contemporary professional issues related to leadership and research in educational psychology. Focus varies depending on the interest of the students enrolled in the class. Ultimately, this proseminar synthesizes content learned from the core courses in the EdD, contemporary research in leadership in educational psychology, and the students' professional goals. Prerequisite(s): CLES 901, 902, 903, 904, 905, 906 and 907.

**CLES 909. Dissertation (1-5).**

Provides students with dissertation proposal and dissertation advisement and may be taken for 1-5 credit hours per semester for a maximum of 15 credit hours, which are counted toward program completion. Prerequisite(s): CLES 902, 903, 904, 905, 906, 907. Can be taken simultaneously with CLES 908.

**CLES 952A. Clinical Mental Health Counseling Internship I (3).**

Requires a total of 300 hours in the practice of clinical mental health counseling under clinical supervision. Of the 300 hours, a minimum of 120 hours must be direct counseling service. The student should consider selecting an internship site that offers opportunities to engage in both individual counseling and group work. Clinical settings must be approved and appropriate to the student's emphasis. The semester prior to enrollment, the student must complete the internship application process. Prerequisite(s): admission to candidacy, CESP 803; CESP 824, CLES 860 (both with a minimum course grade of B). Pre- or corequisite(s): CESP 821; CESP 825 (with minimum passing grade of B).

**CLES 952B. Clinical Mental Health Counseling Internship II (3).**

Requires a total of 300 hours in the practice of clinical mental health counseling under clinical supervision. Of the 300 hours, a minimum of 120 hours must be direct counseling service. Students should consider selecting internship sites that offer opportunities to engage in both individual counseling and group work. Clinical setting must be approved and appropriate to the student's emphasis. The semester prior to enrollment, the student must complete the internship application process. Grade assigned will be either "S" Satisfactory (pass) or "U" Unsatisfactory (fail). Prerequisite(s): admission to candidacy and CLES 952A with a grade of "S" (pass).

**CLES 952C. Clinical Mental Health Counseling Internship (6).**

Requires a total of 600 hours in the practice of clinical mental health counseling under clinical supervision. Of the 600 hours, a minimum of 240 hours must be direct counseling service. The student should consider selecting an internship site that offers opportunities to engage in both individual counseling and group work. Clinical settings must be approved and appropriate to the student's emphasis. The semester prior to enrollment, the student must complete the internship application process. Prerequisite(s): admission to candidacy, CESP 803; CESP 824, CLES 860 (both with a minimum course grade of B). Pre- or corequisite(s): CESP 821; CESP 825 (with minimum passing grade of B).

## COMM - Communication

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**COMM 500. Advanced News and Feature Writing (3).**

1 Classroom hour; 4 Lab hours. Focuses on journalistic techniques for reporting and writing the more complex and important types of news and feature stories. Students work in various forms of traditional and emerging journalism. Emphasizes creating comprehensive content by integrating print, broadcast, web, social media and other delivery

methods. Prerequisite(s): junior standing, COMM 301 with a C or better, and COMM 401.

**COMM 502. Public Information Writing (3).**

Uses basic journalistic skills of clear, precise writing to communicate effectively with various audiences. Students write press releases, speeches and popularizations of complex documents. Techniques learned are valuable in writing grant proposals, committee reports, pamphlets and journal articles. Prerequisite(s): COMM 301 with a C- or better, or departmental consent.

**COMM 506. Sound for Picture (3).**

Focuses on the use of sound as a part of the storytelling process of film and video production. Examines the concepts and technology necessary for production. Prerequisite(s): COMM 406.

**COMM 510. Editing For Print (3).**

Selection, evaluation and preparation of copy and pictures for publication. Covers copy editing, rewriting, headline and caption writing. Prerequisite(s): junior standing and COMM 301 with a C or better.

**COMM 511. Strategic Communication in Organizations (3).**

Emphasizes the importance of effective communication in building meaningful relationships, grooming civic leadership and producing marketable employees. Human communication skills taught include: how to give effective presentations, facilitate small group discussions, handle conflict, manage diverse constituencies at various levels: organizational, interpersonal, small group and public; and contemporary topics and issues. Prerequisite(s): COMM 130 or 190, or instructor's consent.

**COMM 512. Principles of Video Production (3).**

Examines the concepts and technology necessary for effective production of video communication. Topics include camera operation, video editing and the role of light, sound and sequencing in video production. Prerequisite(s): COMM 306.

**COMM 525. Advertising Copywriting (3).**

Detailed practice at writing various kinds of advertising copy, including print and broadcast forms. Emphasizes terse, precise writing that evokes response sought by advertiser. Prerequisite(s): COMM 301, 324 with a C or better or departmental consent.

**COMM 535. Communication Analysis and Criticism (3).**

*General education humanities course.* Introduces the methods used for the analysis and critique of various linguistic, pictorial and aural elements of communication to become more discerning consumers of the various forms of public and mass-mediated messages. Analysis includes print advertisements, radio and television messages, newspaper features and public speeches. Prerequisite(s): junior standing and COMM 301 with a C- or better or instructor's consent.

**COMM 550. Opinion Writing (3).**

Studies editorial judgment, including practice in writing print, broadcast and electronic opinion pieces, and examining traditional and new technology research materials available to opinion writers. Prerequisite(s): COMM 301 with a C or better, junior standing.

**COMM 555. News and Information Design (3).**

Examines contemporary theories of publication layout and the visual presentation of quantitative information. Students investigate methods for combining type, graphics and photographs to convey information and tell stories. Prerequisite(s): COMM 301, 305.

**COMM 570. Magazine Production (3).**

Magazine production, including the choosing of subjects, approaches and illustrations; the shooting and editing of photographic stories;

layout; the handling of production and management concerns.

Prerequisite(s): COMM 301 and 510, or departmental consent.

**COMM 581. Communication Practicum (1-3).**

Application of theory, principles and practices to professional settings where students work under instructor supervision to continue their professional preparation in various areas of media and communication. Prerequisite(s): COMM 301 and instructor's consent.

**COMM 604. Video Storytelling (3).**

Application of video equipment and techniques for field productions. Execution of visual and audio expression in relation to effective video productions in a field setting. Prerequisite(s): COMM 512.

**COMM 609. Interactive Media Production (3).**

Investigation and application of production techniques for educational and instructional broadcasting, emphasizing television. Prerequisite(s): COMM 304.

**COMM 612. Scholastic Journalism Instructional Strategies (3).**

Assists those who are preparing to advise and teachers who currently supervise a student newspaper or yearbook. Emphasizes techniques for teaching various forms of writing and design, duties relating to production and finance of school publications, and methods to help students become better communicators. Prerequisite(s): COMM 301 with a C or better, or instructor's consent.

**COMM 622. Studio B: Live Television News (3).**

Reporting and writing about events in the university and community. Story assignment and preparation under the instructor's guidance; story broadcast over WSU Cable Channel 13. Repeatable for credit with advisor's consent. Prerequisite(s): COMM 422 or instructor's consent.

**COMM 626. Integrated Marketing Communications Campaigns (3).**

Instruction and practice in planning and developing integrated advertising and public relations campaigns. Teaches students to perform a situation analysis, identify objectives, develop strategies and tactics, and write a plans book, as well as produce advertising and public relations campaign materials. Prerequisite(s): COMM 502 or 525, or instructor's consent.

**COMM 630. Communication Law and Responsibility (3).**

Emphasizes both oral and written aspects of communication law and responsibility. Addresses general functions of the law including the right to communicate, broadcast law and law of the press. Includes discussion of First Amendment rights, libel, privacy, copyright, advertising, obscenity, pornography and corporate communication concerns. Prerequisite(s): COMM 301 with a C- or better or instructor's consent.

**COMM 631. Historical and Theoretical Issues in Communication (3).**

*General education humanities course.* Examines the development of various issues in communication in historical context. Emphasizes different humanistic and scientific theories of communication and the historical development of mediated communication. Uses selected theories to generate critiques of specific communication events. Prerequisite(s): junior standing and COMM 130 or 190, or instructor's consent.

**COMM 633. Senior Honors Project (3).**

For undergraduates seeking departmental honors in communication. An individual written and oral project, including a review of literature, methodology and critical analysis on a communication topic approved by the instructor. Prerequisite(s): senior standing; minimum GPA of 3.500; COMM 430, 535, 630, 631; departmental consent.

**COMM 640. Issues in Corporate Communication (3).**

Examines how corporations craft messages that are persuasive to their various publics. Special attention to how companies use communication strategies to cope with situations that threaten their reputations.

**COMM 650. Communication Training and Development (3).**

Examines communication concepts, processes, technologies and strategies related to training and development. Includes the application of these elements to formal instruction across disciplines and at various educational levels as well as in most professional training settings.

**COMM 660. Seminar in Communication (1-3).**

Special seminars dealing with current problems, issues or interests in various areas of communication. Repeatable for credit in different topics only.

**COMM 660AI. Advertising Copy Writing for Professionals (3).**

This advanced, online copy writing class is an exploration course designed for returning professionals, traditional graduate students and undergraduate seniors interested in copy writing. Focuses on developing creativity as a strategic approach to ad copy writing, as well as honing existing writing skills.

**COMM 660AL. Real News, Fake News: Literacy for the Information Age (3).**

Cross-listed as COMM 860AL. In today's media-saturated world, in an era many refer to as "post-truth," much of what we see, hear and read is FAKE news. This advanced-level course probes the background of this development and provides students with methods and tools to understand and critique this phenomenon.

**COMM 660AM. Autoethnography (3).**

Cross-listed as COMM 860AM. Comprehensive study and application of autoethnography as a qualitative research method. Autoethnography explores through various media the dynamic relationships among method, theory and personal narratives.

**COMM 660AN. Race, Rhetoric and Media (3).**

Cross-listed as COMM 860AN. Examines the role of rhetoric and media in the public life of race and racism. Explores how race is constituted through symbolic practices, how race is negotiated through the use of media technologies, and how rhetoric and media have been used to both perpetuate and challenge racism.

**COMM 660AO. Communication Case Studies Methods (3).**

Cross-listed as COMM 860AO. Examines the creation of communication strategies and application of communication techniques in industry and society through case studies. Students learn how to analyze and create case studies as a qualitative research method.

**COMM 660AQ. Student Media Production (3).**

Cross-listed as COMM 860AQ. Students learn the roles and responsibilities of producing independent student media.

**COMM 660AR. Live Sports Production (3).**

Cross-listed as COMM 860AR. Students learn the roles, responsibilities and techniques of producing live sporting events. Topics also include equipment, graphics, replay and technical direction.

**COMM 660AS. Persuasion (3).**

Cross-listed as COMM 860AS. Surveys advanced theory and experimental studies in persuasion.

**COMM 660AU. Business of Media (3).**

Cross-listed as COMM 860AU. Students gain a broader understanding of the business side of news media, from historical and contemporary perspectives. There is no news production without revenue. The major undertaking for the term is a proposed media entrepreneur project created by the student.

**COMM 660AV. Multicultural Marketing Communication (3).**

Cross-listed as COMM 860AV. Explores consumer behavior similarities and differences among Hispanic, Asian, African-American and Non-Hispanic White cultural market segments in the United States. Addresses the principles for international marketing communications planning.

**COMM 660AX. Advanced Public Relations (3).**

Cross-listed as COMM 860AX. Builds on basic public relations tactics such as press releases, pitches, fact sheets, communication plans and press conferences. Students learn and implement advanced public relations and strategic communications skills including targeted media pitches, audience research, measurement, issues management, reputation management, media training and change communication techniques. Prerequisite(s): COMM 301 with a grade of C-.

**COMM 660AY. Film and Journalism (3).**

Cross-listed as COMM 860AY. Critically analyzes films as teaching tools of best practices — or not — of journalism and journalists as depicted by Hollywood. Students analyze films from a Formalist perspective, a theory that focuses on "elements" of film, hopefully inspiring journalists to improve their powers of observation.

**COMM 660BB. Media Analytics and Audience Behavior (3).**

Cross-listed as COMM 860BB. Analysis of audience behaviors based on media analytics. Students explore psychological and methodological approaches to better understand audiences based on data derived from media analytics.

**COMM 660BC. Communication and Persuasion in the Courtroom (3).**

Cross-listed as COMM 860BC. Studies the theory and techniques of courtroom persuasion. Examines the role of communication in the practice of law. Topics include witness preparation, theme development, opening and closing statements, and the use of pretrial mock jury research.

**COMM 660BD. Future of Journalism (3).**

Cross-listed as COMM 860BD. Explores the future of journalism, from new business models and changing newsrooms to collaborative and solutions-based journalism. Examines current efforts to restructure news organizations, including interviews with practitioners of these efforts.

**COMM 660CA. Photographing Contemporary Social Issues (3).**

Overview of the history, theory, technology and practice of modern point-of-view photojournalism. Includes a personal documentary photo essay project and other experiential assignments. Basic digital photography experience is recommended.

**COMM 660CB. Applied Video Production (3).**

Students learn to apply principles of video production to create projects for corporate clients, including feature stories, training videos, promotional videos and other multimedia content as needed. Students work closely with clients in Shocker Ad Lab and IMC Campaigns. COMM 512 is strongly encouraged. Prerequisite(s): COMM 306.

**COMM 662. Seminar in Communication (1-3).**

Special seminars dealing with current problems, issues or interests in various areas of communication. Repeatable for credit in different topics only.

**COMM 662T. Shocker Ad Lab (3).**

Applied skills-based course that functions as a student-run advertising and public relations agency. Students design, write, edit, photograph, video record and produce client work across all platforms, giving them a solid working knowledge of the platforms and processes as well as pieces for their professional portfolios.

**COMM 662V. Communication Entrepreneur (3).**

Special seminar dealing with current problems, issues or interests in various areas of communication. Students read and discuss how to effectively communicate while starting a company. Students meet with entrepreneurs who have been both successful and unsuccessful communicators in their careers. Repeatable for credit in different topics only.

**COMM 675. Directed Study (1-4).**

Cross-listed as THEA 675. Individual study or projects. Repeatable for credit with departmental consent. Prerequisite(s): departmental consent.

**COMM 690. Communication Internship (1-2).**

Credit for professional experience that integrates theory with a planned and supervised professional experience designed to complement and enhance an academic program. Individualized programs must be formulated in consultation with, and approved by, appropriate faculty sponsors. Repeatable for credit, but limited to a total of 4 credit hours in COMM 481 and COMM 690. Prerequisite(s): departmental consent.

**COMM 750. Workshops in Communication (1-4).**

Workshops on a variety of communication topics. Different topics are indicated by a letter following the course number.

**COMM 750C. Oral Communication Methods (1-3).**

Introduces students to philosophies, strategies and practices pertaining to instructing undergraduates. Demonstrates how to teach public speaking in entry-level skills courses at the collegiate level. Designed as a practicum that covers lecture skills, speech preparation skills, grading/speech evaluation, student-instructor interaction, classroom exercises, university policies, etc.

**COMM 760. Seminar in Communication (1-3).**

Special seminars dealing with current problems, issues or interests in various areas of communication. Repeatable for credit in different topics only.

**COMM 801. Introduction to Communication Research (3).**

Integrative approach to understanding the nature and scope of communication research. Provides an overview of current research in the discipline. Instruction in the basic steps of research; availability of library and other sources; bibliographic search; computer accessing of source materials; organization, style and format of a research report and citation of sources in accordance with standard style guides.

**COMM 802. Qualitative Methodologies in Applied Communication Research (3).**

Explores methodologies, including observational research, focus groups and key information interviews, which are commonly used in applied communication projects. Prerequisite(s): COMM 801.

**COMM 803. Empirical/Quantitative Research Methodology in Communication (3).**

Introduces empirical research methods in communication. Emphasizes both experimental and nonexperimental research, particularly those forms of research common to communication studies. Studies research design, methods and reporting techniques. Prerequisite(s): COMM 801.

**COMM 812. Contemporary Theories of Communication (3).**

Studies selected conceptual models useful in the academic study of human communication, including theories involving such contexts as interpersonal communication, public communication and mass communication.

**COMM 820. Investigation and Conference (1-3).**

Cross-listed as THEA 820. Directed research and experimentation for graduate students in some phase of (1) public address, (2) theatre history and production, (3) radio-television, or (4) the teaching of speech. Repeatable for a total of 6 credit hours.

**COMM 832. Methods in Communication History (3).**

Introduces the historical methodologies used by communication historians. Emphasizes major works of past and current communication historians and the methodological and analytical tools used in such scholarship. Prerequisite(s): COMM 801.

**COMM 850. Effectively Instructing and Managing the Basic Communication Course (1).**

Instruction on effective oral communication teaching methods and on effectively managing the basic communication course. *Course includes diversity content.* Repeatable for a total of 4 credit hours. Prerequisite(s): departmental consent.

**COMM 860. Seminar In Communication (1-3).**

Special seminars dealing with current problems, issues or interests in various areas of communication. Repeatable for credit in different topics only.

**COMM 860AL. Advanced Copy Writing for Professionals (3).**

This graduate-level, online copy writing class is an exploration course designed for returning professionals, traditional graduate students and undergraduate seniors interested in copy writing. Focuses on developing creativity as a strategic approach to ad copy writing, as well as honing existing writing skills.

**COMM 860AL. Real News, Fake News: Literacy for the Information Age (3).**

Cross-listed as COMM 660AL. In today's media-saturated world, in an era many refer to as "post-truth," much of what we see, hear and read is FAKE news. This advanced-level course probes the background of this development and provides students with methods and tools to understand and critique this phenomenon.

**COMM 860AM. Autoethnography (3).**

Cross-listed as COMM 660AM. Comprehensive study and application of autoethnography as a qualitative research method. Autoethnography explores through various media the dynamic relationships among method, theory and personal narratives.

**COMM 860AN. Race, Rhetoric and Media (3).**

Cross-listed as COMM 660AN. Examines the role of rhetoric and media in the public life of race and racism. Explores how race is constituted through symbolic practices, how race is negotiated through the use of media technologies, and how rhetoric and media have been used to both perpetuate and challenge racism.

**COMM 860AO. Communication Case Studies Methods (3).**

Cross-listed as COMM 660AO. Examines the creation of communication strategies and application of communication techniques in industry and society through case studies. Students learn how to analyze and create case studies as a qualitative research method.

**COMM 860AP. Storytelling (3).**

Practice in developing a plot starting with a strong main character acting on a wish and confronting obstacles. Practice, too, in organizing that character's conflicts into escalating action, and in knocking out the habit of "telling," and doing more "showing" instead.

**COMM 860AQ. Student Media Production (3).**

Cross-listed as COMM 660AQ. Students learn the roles and responsibilities of producing independent student media.

**COMM 860AR. Live Sports Production (3).**

Cross-listed as COMM 660AR. Students learn the roles, responsibilities and techniques of producing live sporting events. Topics also include equipment, graphics, replay and technical direction.

**COMM 860AS. Persuasion (3).**

Cross-listed as COMM 660AS. Surveys advanced theory and experimental studies in persuasion.

**COMM 860AT. Advanced Law of Communication (3).**

Graduate level survey focusing on media law and regulations to better understand communication freedoms and limitations.

**COMM 860AU. Business of Media (3).**

Cross-listed as COMM 660AU. Students gain a broader understanding of the business side of news media, from historical and contemporary perspectives. There is no news production without revenue. The major undertaking for the term is a proposed media entrepreneur project created by the student.

**COMM 860AV. Multicultural Marketing Communication (3).**

Cross-listed as COMM 660AV. Explores consumer behavior similarities and differences among Hispanic, Asian, African-American and Non-Hispanic White cultural market segments in the United States. Addresses the principles for international marketing communications planning.

**COMM 860AW. Positive Media Psychology (3).**

Analyzes current developments in media psychology, including positive emotions, meaningful media content, and how they affect viewers' behavior in various domains such as information processing, evaluation, judgment and decision making. Helps students apply relevant theories and constructs to developing effective interventions and integrated marketing communication campaigns.

**COMM 860AX. Advanced Public Relations (3).**

Cross-listed as COMM 660AX. Builds on basic public relations tactics such as press releases, pitches, fact sheets, communication plans and press conferences. Students learn and implement advanced public relations and strategic communications skills including targeted media pitches, audience research, measurement, issues management, reputation management, media training and change communication techniques. Prerequisite(s): COMM 301 with a grade of C-.

**COMM 860AY. Film and Journalism (3).**

Cross-listed as COMM 660AY. Critically analyzes films as teaching tools of best practices — or not — of journalism and journalists as depicted by Hollywood. Students analyze films from a Formalist perspective, a theory that focuses on “elements” of film, hopefully inspiring journalists to improve their powers of observation.

**COMM 860BB. Media Analytics and Audience Behavior (3).**

Cross-listed as COMM 660BB. Analysis of audience behaviors based on media analytics. Students explore psychological and methodological approaches to better understand audiences based on data derived from media analytics.

**COMM 860BC. Communication and Persuasion in the Courtroom (3).**

Cross-listed as COMM 660BC. Studies the theory and techniques of courtroom persuasion. Examines the role of communication in the practice of law. Topics include witness preparation, theme development, opening and closing statements, and the use of pretrial mock jury research.

**COMM 860BD. Future of Journalism (3).**

Cross-listed as COMM 660BD. Explores the future of journalism, from new business models and changing newsrooms to collaborative and solutions-based journalism. Examines current efforts to restructure news organizations, including interviews with practitioners of these efforts.

**COMM 862V. Communication Entrepreneur (3).**

Special seminar dealing with current problems, issues or interests in various areas of communication. Students read and discuss how to effectively communicate while starting a company. Students meet with entrepreneurs who have been both successful and unsuccessful

communicators in their careers. Repeatable for credit in different topics only.

**COMM 865. Organizational Communication (3).**

Analyzes communication models emphasizing their applications to communication problems in organizations. Explores social psychological processes underlying persuasion in interpersonal relations and through mass media. Critically analyzes communication systems and techniques within formal organizations.

**COMM 870. Directed Study (1-3).**

Individual study or projects. Repeatable for credit with departmental consent. Prerequisite(s): departmental consent.

**COMM 875. Thesis (1-3).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for credit. Prerequisite(s): departmental consent.

**COMM 876. Thesis (1-3).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for credit. Prerequisite(s): departmental consent.

## CS - Computer Science

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**CS 510. Programming Language Concepts (3).**

Theoretical concepts in the design and use of programming languages. Formal syntax, including Backus Normal Form (BNF), Extended Backus-Naur Form (EBNF), and syntax diagrams. Semantics, including declaration, allocation and evaluation, symbol table and runtime environment; data types and type checking, procedure activation and parameter passing, modules and abstract data types. Prerequisite(s): CS 311, MATH 322.

**CS 540. Operating Systems (3).**

Fundamental principles of modern operating systems. CPU management including processes, threads, scheduling, synchronization, resource allocation and deadlocks. Memory management including paging and virtual memory. Storage management and file systems. Prerequisite(s): CS 238, 311.

**CS 560. Design and Analysis of Algorithms (3).**

Design of various algorithms including several sorting algorithms. Analysis of their space and time complexities. Data structures include heaps, hash tables and binary search trees. Prerequisite(s): CS 322, 400; STAT 460 or IME 254.

**CS 580. Introduction to Software Engineering (3).**

Introduces the processes, methods and tools used in software development and maintenance. Topics include software development life cycle and processes, configuration management, requirements gathering, OOA/D with UML, cohesion and coupling, and unit testing. Prerequisite(s): CS 311.

**CS 581. Programming for Computing (3).**

Fast-paced course in computer programming in Python. Emphasizes problem solving and object-oriented programming principles. Topics include language syntax, built-in data structures, functions, classes, modules and exception handling. Not for BSCE, BSCS or BSEE credit. Prerequisite(s): MATH 242.

**CS 582. Applied Data Structure and Algorithms for Computing (3).**

Fast-paced course that introduces basic data structures, algorithms, and introduces analysis of space and time complexity. Topics includes sorting algorithms, greedy algorithms, linked lists, stacks, queues, binary search trees, asymptotic notation, substitution and recursion tree method, master theorem, and order statistics. Not for BSCE, BSCS or BSEE credit. Prerequisite(s): CS 581.

**CS 594. Microprocessor-Based System Design (4).**

3 Classroom hours; 2 Lab hours. Presents knowledge and skills required to design and program microprocessor-based systems. Introduces vendor-supplied special-purpose chips such as interrupt controllers and programmable input/output devices. Laboratory activities give hands-on experience. Prerequisite(s): CS 238, 394. Corequisite(s): CS 594L.

**CS 656. Introduction to Cybersecurity (3).**

Provides fundamental concepts in cybersecurity including cryptography, security in networks, operating systems and databases. Topics in intrusion detection, security administration, and legal and ethical issues are also discussed. Prerequisite(s): CS 664 or CS 764.

**CS 664. Computer Networks (3).**

Introductory course on computer networking. Introduces concepts and protocols in various network layers with emphasis on the internet. Topics covered include: physical layer (wired and wireless), medium access control and data link layers, packet switching and routing (IP), routing protocols, transport layer (TCP, UDP), congestion and flow control, basic network security, and network applications. Prerequisite(s): undergraduate students: IME 254 and CS 311; graduate students: object oriented programming and statistics/probability knowledge.

**CS 665. Introduction to Database Systems (3).**

Fundamental aspects of relational database systems, conceptual database design and entity-relationship modeling; the relational data model and its foundations, relational languages and SQL, functional dependencies and logical database design; views, constraints and triggers. Course includes a group project involving the design and implementation of a relational database and embedded SQL programming. Prerequisite(s): CS 311, MATH 322.

**CS 697. Selected Topics (1-3).**

1-3 Classroom hours; 0-2 Lab hours. Selected topics of current interest. Repeatable for credit with departmental consent. Prerequisite(s): departmental consent.

**CS 697AG. Introduction to Intelligent Robotics (3).**

The study of intelligent robotics allows robots to gather information from surrounding environments and take actions autonomously. Course introduces the fundamental principles and methods of manipulation, navigation and perception for intelligent robotics. Topics covered include geometry transformations, kinematics, dynamics, localization, navigation, mapping, motion planning, intelligent processing, smart sensing, decision making, and robotic intelligence. Explores the robot concepts and algorithms, such as dexterous manipulation, simultaneous localization and mapping (SLAM), and autonomy, while working with Nao humanoid robots and Sawyer collaborative robots. Prerequisite(s): CS 300, MATH 511, IME 254.

**CS 697AN. Hardware-Based Computer Security (3).**

Intended for seniors and graduate students who want to study and explore the role of hardware in improving computer security. Topics covered may include (1) elements of computer security, (2) secure coprocessor, (3) secure bootstrap loading, (4) secure memory management, (5) hardware-based authentication, (6) hardware-based virus detection, (7) hardware as a cybersecurity solution, (8) security engineering, (9) managing the development of secure systems, and (10)

system evaluation and assurance. Prerequisite(s): CS 394 and a desire to learn more about both computer architecture and security.

**CS 697AP. Applied Parallel Computing (3).**

This course is to teach how to program parallel computers to efficiently analyze challenging problems with enormous datasets. Two distinct approaches will be introduced which can be used to solve problems in all manner of domains including data analytics and machine learning. The first approach to be studied will be embarrassingly parallel in nature while the second approach will leverage fine-grain parallelism. Prerequisite(s): CS 394 or Instructor's consent.

**CS 697AQ. Web Programming (3).**

Hands-on introduction to web programming. Prepares students to create webpages and develop web applications that integrate with a backend database. Topics covered include client-side technologies that run in the web browser (HTML, CSS and JavaScript), and server-side technologies that run on the web server (Node.js or PHP and SQL). A strong programming background is preferred for successful completion of several practical exercises contained in the course. Prerequisite(s): CS 311.

**CS 715. Compiler Construction (3).**

First compiler course for students with a good background in programming languages and sufficient programming experience. Covers compiler design, lexical analysis, parsing techniques, symbol tables, scope analysis, type checking and conversion; run-time organization, code generation and optimization. Project-oriented course involves implementation of a full compiler for a simplified but nontrivial procedural language. Prerequisite(s): CS 238, 510.

**CS 720. Theoretical Foundations of Computer Science (3).**

Provides an advanced level introduction to the theoretical bases of computer science. Computer science theory includes the various models of finite state machines, both deterministic and nondeterministic, and concepts of decidability, computability and formal language theory. Prerequisite(s): CS 322.

**CS 721. Advanced Algorithms and Analysis (3).**

Topics include height-balanced trees, graph algorithms, greedy algorithms, dynamic programming, hard problems and approximation algorithms. Prerequisite(s): CS 560.

**CS 731. Mathematical Foundations for Computer Networking (3).**

Introductory class on applying various mathematical tools to the field of computer networks and related areas. Divided into three phases: phase one covers the fundamentals of probability, statistics and linear algebra required for understanding the core topics to follow. Phase two covers the core topics of optimization and queuing theory. Phase three briefly covers the advanced topics of game theory and information theory. The depth of coverage is sufficient to allow students to read and understand research papers in computer networking and related areas that use these standard techniques. Ideas are taught through intuition, mathematically correct formalization and detailed numerical examples. Prerequisite(s): MATH 243. Corequisite(s): CS 664.

**CS 737. Wireless Networking (3).**

Covers topics ranging from physical layer to application layer in the wireless and mobile networking fields. Explores physical layer issues of wireless communications, wireless cellular telephony, ad-hoc networks, mobile IP and multicast, wireless LAN (IEEE 802.11), security, Bluetooth and WAP, etc. Imparts general knowledge about wireless communication technologies and ongoing research activities. Prerequisite(s): CS 664.

**CS 746. Perspectives on Data Science (3).**

Covers the perspectives and fundamentals of data science. Topics include data collection, preprocessing, transformation, exploratory

data analysis, visualization, predictive modeling, descriptive modeling, clustering, regression and classification and data science project life cycle. This course is limited to engineering students and students in other colleges majoring in data science/analytics related programs. Prerequisite(s): IME 254 and CS 211 for undergraduate students; instructor's consent for graduate students.

**CS 750. Workshop in Computer Science (1-5).**

Short-term courses with special focus on introducing computer science concepts. Repeatable for credit. Prerequisite(s): departmental consent.

**CS 764. Routing and Switching I (4).**

3 Classroom hours; 2 Lab hours. Introductory course which studies different hardware technologies, like Ethernet and token ring. Discusses VLSM. Introduces different routing protocols. Includes hands-on experience in the CS department's routing and switching lab. Prerequisite(s): CS 664.

**CS 767. Foundations of Network Security (3).**

Presents fundamental concepts in cryptography and network security, and discusses applications and protocols for providing confidentiality, authentication, integrity and availability in networking services and systems. Includes review of symmetric-key cryptographic schemes such as DES and AES, public-key cryptographic schemes such as RSA and Diffie-Hellman key exchange protocol, cryptographic hash functions such as SHA, message authentication codes such as HMAX, digital signature schemes such as El-Gamal and DSS, kerberos and user authentication protocols, transport layer security and TLS, IP layer security and IPSec, and wireless security principles. Prerequisite(s): CS 664; the department also highly recommends CS 656, but it is not required.

**CS 771. Artificial Intelligence (3).**

Introduces some of the fundamental concepts and techniques underlying artificial intelligence. Topics covered include state spaces, heuristic search, game playing, knowledge representation, and resolution in propositional and first-order predicate logic. Prerequisite(s): CS 560.

**CS 780. Advanced Software Engineering (3).**

Systematically learns and practices all workflows of the Unified Process. Discusses advanced topics in software development, maintenance and evolution. Topics include software design patterns, architecture and architectural styles, frameworks, refactorings, and static and dynamic analyses. Includes a group project. Prerequisite(s): CS 580.

**CS 781. Cooperative Education (1-3).**

Practical experience in a professional environment to complement and enhance the student's academic program. For master's level CS students. Repeatable for credit, but may not be used to satisfy degree requirements. Prerequisite(s): departmental consent and graduate GPA of 3.000 or above.

**CS 794. Multicore Architectures and Programming (3).**

3 Classroom hours. Introduces state-of-the-art concepts and techniques to design and program modern computer systems. Particular attention is given to the following areas: multicore architecture, parallel programming and advanced research. Labs give hands-on experience. Prerequisite(s): CS 211, 394.

**CS 797. Special Topics in Computer Science (1-4).**

New or special courses presented on sufficient demand. Repeatable for credit. Prerequisite(s): departmental consent.

**CS 798. Individual Projects (1-3).**

Allows beginning graduate students and mature undergraduate students to pursue individual projects of current interest in computer science. Repeatable for credit with advisor approval. Prerequisite(s): departmental consent.

**CS 834. Advanced Routing and Switching (3).**

Advanced course which provides an introduction to the Border Gateway Protocol (BGP), the main internet routing protocol, and mobile all-IP-networks. Significant research topics regarding BGP and mobile IP networks are covered. Prerequisite(s): CS 764.

**CS 835. Ad Hoc and Sensor Networks (3).**

Teaches the basic techniques, particularly algorithms and protocols used in sensor networks. Exposes students to various sensor network applications and the fundamental issues in designing and analyzing sensor networks. Provides students with a perspective on the active research areas in wireless ad hoc and sensor networks and enhances their potential to do research in this area. Focuses mainly on data intensive sensor networks. Prerequisite(s): CS 560.

**CS 865. Principles of DBMS Implementation (3).**

An introduction to the fundamental principles underlying modern database management systems (DBMS). It deals almost entirely with DBMS based on the relational data model. Topics covered are: storage management and query processing. Prerequisite(s): CS 560 and CS 665.

**CS 891. Project (1-3).**

Intensive project involving the analysis and solution of a significant practical problem which must be supervised by a CS graduate faculty advisor; it can be job-related. Students must write a report on the project and pass an oral final examination by an ad hoc faculty committee headed by the project advisor. Prerequisite(s): departmental consent.

**CS 892. Thesis (1-6).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for up to 6 credit hours. Prerequisite(s): departmental consent.

**CS 893. Individual Reading or Project (1-6).**

Enables students to perform self-learning activities under the supervision of a faculty member. Typical activities include reading state-of-the-art topics, performing research tasks, conducting technical projects, and/or similar assignments pertinent to their degree program of study. The course content, objectives, deliverables and evaluation must be documented and must be approved by the supervising faculty and program coordinator/department chair. Repeatable for credit up to 6 credit hours. Prerequisite(s): departmental consent.

**CS 896. Capstone Project in Data Science (3).**

This capstone course is for MS in data science students only. It aims at providing students the opportunity to apply the various data science concepts (algorithms, methods and tools) they have studied to solve real world data science problems. Students engage in the entire data science life cycle process topics including data collection, preprocessing, transformation, exploratory data analysis, visualization, predictive modeling, descriptive modeling, clustering, regression and classification by working on a project. Prerequisite(s): CS 697AB and CS 746.

**CS 898. Special Topics (2-3).**

1-3 Classroom hours; 0-2 Lab hours. Topics of current interest to advanced students of computer science. Repeatable for credit with departmental consent. Prerequisite(s): departmental consent.

**CS 898AI. Alternative Computing Paradigm (3).**

Computing has been changing its paradigms to fulfill various computation needs. Students learn to understand the present computing systems and then explore some alternative computing paradigms. Topics should include: modern computer systems, optimization techniques for serial code, parallelism and concurrency, parallel computers, parallel computing, quantum computing, chaotic computing

and research projects. Students are expected to have adequate knowledge in computer architecture. By continued enrollment in this class, students are certifying that they have met the prerequisite. Prerequisite(s): at least one of the following: CS 694, CS 738, CS 794, or equivalent.

**CS 898AN. Advanced Topics in Cybersecurity (3).**

Provides advanced concepts in threats to the security of computer systems and networks as well as the state-of-the-art security mechanisms that protect them. Students in this course are exposed to the latest research in cybersecurity research through the study of recent publications in top journals and conferences. Topics in this course range from attacks that require few resources from the attacker but are difficult to address, such as phishing email campaigns and denial of service attacks, to attacks that can only be launched by sophisticated adversaries, such as advanced persistent threats against critical infrastructures. Security mechanisms for these attacks are discussed. A major component of this course is a final project where students research, implement and evaluate a state-of-the-art security mechanism. Prerequisite(s): CS 766 or CS 656 or CS 767.

**CS 898AO. Mobile Computing (3).**

Covers various research topics in the broad area of mobile computing. Students are exposed to several research challenges faced by mobile computing platforms and associated applications such as intermittent network connectivity, battery and performance constraints, indoor localization and navigation. Each student is expected to work in groups to complete a research project at the end of the class that addresses an outstanding research challenge in the area of mobile computing. Students are also expected to read, present and critique existing research literature in the area. Prerequisite(s): CS 560, and prior experience programming with Android Studio.

**CS 898AR. Machine Learning in Computational Biology (3).**

Introduces statistical machine learning algorithms and their applications in computational biology. Intends to achieve two major goals: first, to help students understand the theories of advanced machine learning algorithms; second, to teach students how to apply these cutting-edge machine learning methods to solve problems in life sciences and biomedical research. Students are asked to read and present some selected research papers. They are also required to apply machine learning algorithms to solve real, biological problems in the context of course projects, present the results and document the findings in the form of a final report.

**CS 898AS. Deep Learning: Theory, Algorithms and Applications (3).**

Deep learning is one of the hottest areas in machine learning and is at the core of many recent advances in artificial intelligence, particularly in audio, image, video, and language analysis and understanding. Deep learning is widely deployed by such companies as Google, Facebook, Microsoft, IBM, Baidu, Apple and others for audio/speech, image, video and natural language processing. Course covers a wide variety of topics in deep learning architectures, feature learning and neural computation, including restricted Boltzmann machines, autoencoders, convolutional neural networks etc. Covers mathematical methods and theoretical aspects as well as algorithmic and practical issues. Students have the opportunity to build practical deep neural network architectures and test them on real life datasets in the form of a class project. Prerequisite(s): CS 560, CS 697AB and good Python programming skills.

**CS 898AT. Bitcoins and Cryptocurrencies (3).**

Bitcoin is a new and exciting form of cryptocurrency technology that has the potential of altering payments and economics around the world. In between the optimism surrounding Bitcoin's evolution as an alternate form of currency and the pessimism related to its security, success and

adoptability, there is significant confusion and lack of understanding at the technical level about the precise architecture and operation of Bitcoin. This advanced graduate-level course attempts to bridge this gap in the technical understanding of Bitcoin and its operation. Specifically addresses the following fundamental questions: How does Bitcoin work and what makes it different? How secure is Bitcoin? How anonymous are Bitcoin users? What applications can be built using Bitcoin as a platform? Can cryptocurrencies be regulated? What is the future of Bitcoin and cryptocurrencies in general? Prerequisite(s): CS 767 (Strictly enforced - if prerequisite is not met, seek the instructor's explicit permission before registering).

**CS 898AU. Assistive Mobile Computing (3).**

Covers various research topics in the broad area of mobile computing as it applies to assistive technologies. Assistive technology is an umbrella term that includes assistive, adaptive and rehabilitative devices for people with special needs, and also includes the process used in selecting, locating and using them. Students are exposed to several interdisciplinary research challenges in the design and application of mobile computing platforms when they are used as assistive technologies. These include intermittent network connectivity, battery and performance constraints, indoor localization and navigation, human computer interfaces, biomechanics and human factors. Each student is expected to acquire and apply technical skills to solve some of these research challenges working in groups to complete a research project at the end of the class. Students are also expected to read, present and critique existing research literature in the area. Prerequisite(s): CS 560, and prior experience creating mobile applications with Android or iOS.

**CS 898AV. Software Defined Networking (3).**

SDN has been widely envisioned to be the next-generation networking paradigm for both wired and wireless networks (e.g., Google B4 SDN data center networks and AT&T SDN cellular systems). Students are first introduced to SDN development history, SDN architectural design, SDN traffic engineering, and SDN development tools, (e.g., SDN management protocols Openflow and FlowVisor), network controllers (e.g., Floodlight and RYU), and software programmable switches (e.g., Open vSwitches). Then, students are instructed on how these technologies are applied to some emerging applications (e.g., data center networks, cloud-computing environments, internet, and cellular systems). Finally, the group lab assignment is implemented on the OpenFlow-Mininet simulators as well as on a state-of-the-art wireless SDN testbed. Prerequisite(s): CS 764 or CS 835 or CS 898AF (Cognitive Radio Networks).

**CS 898AW. Artificial Intelligence for Robotics (3).**

Focuses on essential AI approaches for robotic perception, understanding, reasoning and learning. Prerequisite(s): MATH 511 or equivalent.

**CS 898AX. Foundations of Data Science (3).**

Mathematical toolkit that can be applied to problems in data analysis. Topics covered: geometry of high dimensional space; best-fit subspaces and singular value decomposition (SVD); random walks and Markov chains; machine learning; algorithms for massive data problems: streaming, sketching and sampling; clustering. Prerequisite(s): CS 560, MATH 511.

**CS 898AY. Sequential Decision Problems (3).**

Sequential decision problems arise in many applications including packet routing, ad placement, website and page content optimization, or medium access in wireless communications. They typically involve a trade-off between exploration and exploitation, which corresponds to the decision of either exploiting an option that gave high rewards in the past or exploring new options with the hope to obtain higher rewards. Introduces learning methods for sequential decision problems, and presents their theoretical analyses. Topics covered include multi-

armed bandits, stochastic bandits, adversarial bandits, Markov decision processes, tools for regret analysis. Prerequisite(s): EE 754 or CS 731.

**CS 898AZ. Accessible Computing (3).**

Covers various research topics in the area of accessible computing, defined as assistive, adaptive and rehabilitative computing devices, software and techniques for people with special needs to access and use various services. Students are exposed to several interdisciplinary research challenges in the design and application of mobile computing platforms when used towards the accessible computing paradigm. These include intermittent network connectivity, battery and performance constraints, indoor localization and navigation, human computer interfaces, biomechanics and human factors. Each student acquires and applies technical skills to solve research challenges working in groups to complete a research project at the end of the class. Students are also expected to read, present and critique existing research literature in the area. Students from non-CS backgrounds (such as psychology, bioengineering, kinesiology, exercise science, gerontology, communication sciences and disorders, among others) are welcome, and add a multidisciplinary flavor to the class. Students from non-CS backgrounds will have the curriculum adapted to their unique backgrounds. Prerequisite(s): For computer science (CS) and related majors: CS 560 or equivalent, and prior experience creating mobile applications with Android or iOS. For students with non-CS backgrounds: instructor's consent.

**CS 898B. Information Retrieval (3).**

Course deals with information retrieval on the web. Roughly, it deals with how search engines select the desired documents, based on the query. Topics include Boolean retrieval, inverted indexes, and their construction; ranked retrieval, term weighting and relevance ranking. Prerequisite(s): CS 560.

**CS 898BA. Image Analysis and Computer Vision (3).**

Image is an essential form of information representation and communication in modern society. Billions of images are generated every minute in a variety of applications ranging from photography, entertainment, education and defense to medical. A good understanding of vast amounts of image content at signal, object, syntactic and semantic levels are essential to create new capabilities and enable new applications. The objective of this course is to teach practical algorithm and system solutions for image representation, analysis/understanding and retrieval. In addition, computer vision techniques for image classification, object detection and semantic segmentation is also discussed. Prerequisite(s): CS 560.

**CS 898BC. Information Theoretic Security (3).**

Presents a framework for secure communication, which makes no assumptions on the computational power of a potential adversary. Course begins with fundamental tools from information theory and cryptography, which provide the basis for modern research on security at the physical layer and secret-key generation. Various models and applications are discussed. Prerequisite(s): CS 731 or EE 754 or instructor's consent.

**CS 898BD. Deep Learning (3).**

Covers concepts of various deep learning algorithms and introduces artificial neural network, multi-layer perceptron, deep neural network, training of deep neural networks, convolutional neural networks, recurrent neural networks, long short-term memory networks, autoencoders, reinforcement learning, and GAN (generative adversarial network). Prerequisite(s): CS 746 or CS 697AB.

**CS 898BE. Advanced Topics in Machine Learning (3).**

Introduces various advanced and recent topics in machine learning including supervised and unsupervised learning methods. Central themes include, but are not limited to, analyzing modern large-scale

machine learning algorithms toward understanding trade-offs among space, time and the accuracy of such algorithms, performing extensive empirical evaluations to compare various state-of-the-art machine learning algorithms, and critiquing important recent research papers from this field. Specific topics covered in this course vary from semester to semester at the discretion of the instructor. A strong Python programming background is preferred for successful completion of several practical exercises contained in the course. Prerequisite(s): CS 697AB, CS 721, MATH 511, STAT 460 or IME 254, and good Python programming skill.

**CS 898BF. Quantum Information (3).**

Quantum based technology is rapidly developing and allows to leverage well-known quantum phenomena that have the potential for breakthroughs in areas such as sensing, computing, telecommunication and networking. This course introduces fundamental concepts to understand how to store quantum information and transmit quantum information over physical communication channels. It also discusses applications to quantum key distribution. This introductory course presents concepts from the ground up, no prior expertise is assumed. Prerequisite(s): IME 254 or equivalent.

**CS 898CA. Introduction to Intelligent Robotics (3).**

The study of intelligent robotics allows robots to gather information from surrounding environments and take actions autonomously. Course introduces the fundamental principles and methods of manipulation, navigation and perception for intelligent robotics. Topics covered include geometry transformations, kinematics, dynamics, localization, navigation, mapping, motion planning, intelligent processing, smart sensing, decision making and robotic intelligence. Students explore the robot concepts and algorithms, such as dexterous manipulation, simultaneous localization and mapping (SLAM), and autonomy, while working with Nao humanoid robots and Sawyer collaborative robots. Prerequisite(s): MATH 511.

**CS 898CB. Deep Learning for Brain-Computer Interface (3).**

Presents a framework on deep learning algorithms with a focus on brain-computer interface systems. A brain-computer interface system is a direct pathway between human brain and an external device. These systems present research avenues into understanding how the human brain works with the aim of helping people with physical disabilities. Students learn machine learning and deep learning concepts such as feature extraction and classification, and to apply those concepts to brain-computer interface problems.

**CS 898CC. Security for Real-Time Internet-of-Things (3).**

Critical cyberphysical systems have real-time (i.e., strict timing) requirements which require real-time embedded devices to be connected to the internet. This course reviews the basic principles of real-time systems and their security requirements then study security vulnerabilities and explore state of the art real-time security techniques. Prerequisite(s): CS 540 and CS 766 (or equivalent) are recommended.

## CSD - Communication Sciences and Disorders

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**CSD 504. Aural Rehabilitation (3).**

Discussion and labs concerning the role of speech-language pathologists and audiologists in evaluation and treatment of hearing-impaired children, adolescents, adults and their families. Students focus on understanding psychological, social, educational and occupational impacts of hearing loss; on applying a rehabilitative model, technology, individual and group therapies, and collaboration with families and

professionals to help hearing-impaired persons improve or cope better with their communication problems. For majors only. Prerequisite(s): CSD 351 or instructor's consent.

**CSD 504H. Aural Rehabilitation Honors (3).**

Discussion and labs concerning the role of speech-language pathologists and audiologists in evaluation and treatment of hearing-impaired children, adolescents, adults and their families. Students focus on understanding psychological, social, educational and occupational impacts of hearing loss; on applying a rehabilitative model, technology, individual and group therapies, and collaboration with families and professionals to help hearing-impaired persons improve or cope better with their communication problems. For majors only. Prerequisite(s): CSD 351 or instructor's consent.

**CSD 506. Acoustic and Perceptual Phonetics (3).**

Cross-listed as LING 506. Studies the physical patterns (acoustic) of speech sounds and the importance of these acoustic patterns to speech recognition (perception). Focuses on segmental phonemes (vowels and consonants) and on suprasegmental characteristics such as stress and intonation. Introduces different types of speech analysis techniques and discusses how they may be used to study the acoustic patterns of speech sounds. Studies how different aspects of the speech signal relate to listener perception. Note: The CSD 506 or 506H sections must be taken in order for this course to count toward the CSD undergraduate major. Prerequisite(s): CSD 301.

**CSD 506H. Acoustic and Perceptual Phonetics Honors (3).**

Cross-listed as LING 506. Studies the physical patterns (acoustic) of speech sounds and the importance of these acoustic patterns to speech recognition (perception). Focuses on segmental phonemes (vowels and consonants) and on suprasegmental characteristics such as stress and intonation. Introduces different types of speech analysis techniques and discusses how they may be used to study the acoustic patterns of speech sounds. Studies how different aspects of the speech signal relate to listener perception. Note: The CSD 506 or 506H sections must be taken in order for this course to count toward the CSD undergraduate major. Prerequisite(s): CSD 301.

**CSD 512. Communication in Special Populations: Children (4).**

Discusses communication differences, delays and disorders in children. Emphasizes the potential impact on quality of life and on academics resulting from communication disorders associated with special populations of children with speech-language impairments, intellectual disabilities, hearing impairment, acquired language disorders, and craniofacial anomalies. For CSD majors only. For undergraduate students only. Prerequisite(s): CSD 304 and CSD 306 with grade of B (3.000 points/credit hour) or better, and completion of in-class HIPAA training.

**CSD 512H. Communication in Special Populations: Children Honors (4).**

Discusses communication differences, delays and disorders in children. Emphasizes the potential impact on quality of life and on academics resulting from communication disorders associated with special populations of children with speech-language impairments, intellectual disabilities, hearing impairment, acquired language disorders, and craniofacial anomalies. For CSD majors only. For undergraduate students only. Prerequisite(s): CSD 304 and CSD 306 with grade of B (3.000 points/credit hour) or better, and completion of in-class HIPAA training.

**CSD 517. Communication in Special Populations: Aging (3).**

Focuses on how communication is affected by aging, what communication problems may be experienced by older persons, and what the implications are for speech-language pathologists and audiologists providing services to older persons. Explores prevention

activities geared toward maintaining functional communication abilities in older adults as well as functional treatment approaches geared toward the specific communication needs of older persons. For CSD majors, but students from other fields may enroll with departmental consent. *Course includes diversity content.*

**CSD 517H. Communication in Special Populations: Aging Honors (3).**

Focuses on how communication is affected by aging, what communication problems may be experienced by older persons, and what the implications are for speech-language pathologists and audiologists providing services to older persons. Explores prevention activities geared toward maintaining functional communication abilities in older adults as well as functional treatment approaches geared toward the specific communication needs of older persons. For CSD majors, but students from other fields may enroll with departmental consent. *Course includes diversity content.*

**CSD 518. Deaf Culture (3).**

Examines various cultural aspects of the deaf community. Presents the interrelationship of language and culture along with a study of socialization, norms and values. *Course includes diversity content.*

**CSD 519. Genetic and Organic Syndromes (3).**

Introduces human genetics and the impact of chromosomal and structural anomalies of communication disorders. Assessment and remediation of cleft palate speech. For CSD majors only. Prerequisite(s): CSD 304 with a grade of B (3.000 points/credit hour) or better, and completion of in-class HIPAA training. Corequisite(s): CSD 521.

**CSD 519H. Genetic and Organic Syndromes Honors (3).**

Introduces human genetics and the impact of chromosomal and structural anomalies of communication disorders. Assessment and remediation of cleft palate speech. For CSD majors only. Prerequisite(s): CSD 304 with a grade of B (3.000 points/credit hour) or better, and completion of in-class HIPAA training. Corequisite(s): CSD 521.

**CSD 520. ASL: Nonverbal Communication (3).**

Cross-listed as LING 520. Nonverbal way of communication which forms an integral base for communication in American Sign Language. Emphasizes the use and understanding of facial expression, gestures, pantomime and body language. Role play and acting out are required as part of this class. Pre- or corequisite(s): CSD 370 or instructor's consent.

**CSD 521. Genetic and Organic Syndromes Lab (1).**

Laboratory experience which provides students the opportunity to observe and document assessment and treatment of individuals with various communication disorders caused by syndromic and/or gene-linked conditions. For majors only. Prerequisite(s): CSD 304 with grade of B (3.000 points/credit hour) or better, and completion of in-class HIPAA training. Corequisites: CSD 519 or 519H.

**CSD 535. Speech-Language Pathology Assistant Training (2).**

Provides students with training in areas such as ethics, universal safety precautions, patient confidentiality training, reimbursement issues and speech-language pathology scope of practice. In addition, various clinical practice knowledge and skills are covered, including behavioral management, data collection, following treatment plans and clinical reporting. Provides students with useful skills as they progress toward clinical professions in speech-language pathology. Fulfills the requirements for the educational component of the speech-language pathology assistant (SLPA) certification from the American Speech-Language-Hearing Association (ASHA). *Course includes diversity content.* Prerequisite(s): CSD 304.

**CSD 635H. Senior Practicum Honors (1).**

Focuses on techniques and methods for developing clinical skills for a selected supervised practicum setting in speech-language pathology at the university's Evelyn Hendren Cassat Speech-Language-Hearing Clinic. Clinical practice skills include knowledge related to universal precautions, procedures for assessment/intervention, and electronic record keeping. Restricted to senior CSD honors students who have applied and been accepted according to department guidelines.

**CSD 705. Counseling in Communication Sciences and Disorders (3).**

Provides information on the structure and conduct of interviews, basic counseling strategies, and consideration of the "helping" role as practiced by communication disorders professionals. Focuses on information supportive of developing effectiveness in these roles. Considers multicultural concerns. *Course includes diversity content.*

**CSD 710. Autism Spectrum Disorder (3).**

Overview of the characteristics and etiology of autism spectrum disorder and the knowledge needed to conduct effective communication and language assessments and develop evidence-based treatment strategies for individuals with ASD. Covers guidelines for the assessment and intervention of communication skills, including decision making for the selection of functional communication systems, structured teaching and positive environmental supports for effective learning. *Course includes diversity content.*

**CSD 740. Selected Topics in Communication Sciences and Disorders (1-3).**

Individual or group study in specialized areas of communication sciences and disorders. Repeatable for a total of 6 credit hours. Prerequisite(s): instructor's consent.

**CSD 740V. Aural Rehabilitation (3).**

For graduate students who did not complete an aural rehabilitation course during the undergraduate degree. Discussion and labs concerning the role of speech-language pathologists and audiologists in evaluation and treatment of hearing-impaired children, adolescents, adults and their families. Students focus on understanding psychological, social, educational and occupational impacts of hearing loss; on applying a rehabilitative model, technology, individual and group therapies, and collaboration with families and professionals to help hearing-impaired persons improve or cope better with their communication problems.

**CSD 750. Workshop in Communication Sciences and Disorders (1-4).**

Individual or group study in specialized areas of communication sciences and disorders. Repeatable for a total of 8 credit hours.

**CSD 750Q. Improving Communication Skills of Children (1).**

Workshop designed for teachers and speech-language pathologists who work with individuals who have been diagnosed with various disabilities, including autism spectrum disorder (ASD) and are minimally verbal or nonverbal. Participants engage in activities focused on selecting appropriate assessment tools, using a guided decision making process for developing instructional supports, setting goals and objectives based on assessments and observations, and implementing collaborative evidence-based instructional strategies, including augmentative alternative communication, in the classroom and/or home.

**CSD 781. Cooperative Education (1-4).**

A work-related placement that integrates theory with a planned and supervised professional experience designed to complement and enhance the student's academic program. May not be used toward degree requirements. Repeatable for credit.

**CSD 803. Intro to Psychoacoustics (3).**

Fundamental principles, measurement methods, research findings, laboratory practice and readings relating physical properties of nonspeech and speech sounds to people's subjective sensations and perception responses.

**CSD 804. Clinical Audiology I (3).**

Lectures, labs and case studies concerning measurement of hearing sensitivity with the pure tone audiogram. Topics include types and features of audiometers, audiometric test environments, behavioral and electro-acoustic calibration, pure tone air-conduction and bone-conduction threshold testing, clinical masking, audiometric tuning fork testing, and verbal and written interviewing and reporting of pure tone results.

**CSD 805. Clinical Audiology II (4).**

Lectures, labs and case studies concerning auditory evaluation beyond the pure tone audiogram, focusing on differential diagnosis of auditory site-of-lesion. Topics include speech audiometry, acoustic immittance testing, behavioral testing of cochlear versus retro cochlear sensorineural hearing loss, auditory processing evaluation in adults, and assessing nonorganicity. Prerequisite(s): CSD 804.

**CSD 806. Advanced Anatomy and Physiology of the Auditory System (3).**

In-depth study of the structure and function of the ear, emphasizing the conductive and sensory mechanisms and cochlear processes of acoustic signals. Introduces neuroanatomy and electrophysiology of the auditory system, including the efferent system. Highlights major clinical and pathologic correlates to link basic science principles and practice.

**CSD 807. Acoustics and Instrumentation (3).**

Studies basic acoustics for the hearing and speech sciences, including physical and mathematical concepts in sound generation, transmission, manipulation, measurement and wave analysis. Introduces the fundamentals of electricity and electronics related to research and clinical application in audiology, including essential concepts and function of circuits and electronic devices, and technical knowledge of major forms of instrumentation.

**CSD 808. Otoacoustic Emissions (2).**

Studies the theoretical consideration of otoacoustic emissions in evaluating cochlear function and clinical applications of different types of measures, including instrumentation, stimulus and acquisition parameters; effects of intrinsic and extrinsic variables, and interpretation of test results. Prerequisite(s): CSD 807.

**CSD 809. Language and Literacy for Young Children: Assessment and Intervention (3).**

Emphasis on etiology and characteristics of language deficits of young children. Provides current evidence relevant to language assessment and intervention strategies for children birth to school age. Includes examination and development of culturally sensitive individual and family treatment plans, facilitation of emergent literacy, and problem-based application of the descriptive developmental treatment model. Prerequisite(s): previous coursework in typical language development.

**CSD 810. Motor Speech Disorders (2).**

Studies the neurologic bases for motor speech production and dysfunction: dysarthrias and apraxia. Covers assessment of motor speech disorders and clinical management principles and strategies for the speech subsystems of respiration, phonation, articulation, resonance and prosody. Pre- or corequisite(s): coursework in neuroscience.

**CSD 811. Dysphagia (2).**

Covers the disorder of dysphagia as it affects persons of all ages, but with a focus on adults. Examines evidence-based assessment and treatment procedures. Addresses the importance of interprofessional

teamwork and ethical issues. Provokes discussions on the art and science of evaluation and intervention in dysphagia management.

**CSD 811L. Dysphagia Lab (2).**

Study and labs targeting specific populations — from infant to geriatric patients — having various feeding and swallowing issues. Hands-on practice with instrumentation for dysphagia, and supervised observation/participation on teams and with patients live or through video presentation/case studies. Additional coursework to enhance knowledge and skills concerning specific disease groups and populations, with accompanying evaluation and treatment considerations. *Course includes diversity content.* Pre- or corequisite(s): CSD 811.

**CSD 812. Aphasia (3).**

Prepares students for clinical work with people with aphasia. Students integrate background information from neurophysiology to understand aphasia. Emphasizes psycholinguistic and neurolinguistics theories of language processing, assessment, differential diagnosis of neurogenic language disorders, and developing appropriate restorative and compensatory intervention plans. Also focuses on the clinical description and characteristics of the impairments as well as on the psychosocial changes in life activities and participation of people who live with aphasia.

**CSD 814. Speech-Sound Disorders (2).**

Reviews current theories on the etiology and development of the disorder. Considers behaviorally based diagnostic procedures for children and adults, as well as methods for clinical intervention, including procedures for parent interviewing and counseling, and multicultural concerns. Provides opportunities for observation, one focus being demonstration of intervention methods.

**CSD 815. Augmentative and Alternative Communication (2).**

Provides information about assistive technology for persons with special needs across the life span (e.g., cerebral palsy, degenerative neurological diseases, autism). Considers physical, linguistic and cognitive factors in designing and implementing assistive technology resources. Provides resources for assessment, intervention, partner training and report writing. Studies use of augmentative and alternative communication systems and computer applications/modifications. Explores resources for purchase and funding of AAC systems.

**CSD 816. Language and Literacy for School-Age and Adolescents (3).**

Examines various approaches to working with children and adolescents with language and literacy deficits which compromise school success. Explores the multidimensional nature of the language and literacy needs of students in the classroom to meet Common Core standards. Includes multicultural aspects and collaboration strategies.

**CSD 817. Voice Disorders (3).**

Reviews current knowledge on the symptomatology and etiology of commonly encountered voice disorders in children and adults. Presents procedures for differential diagnosis and clinical intervention, based on a working knowledge of the anatomy and physiology of normal voice production. Considers multicultural issues.

**CSD 818. Fluency Disorders (3).**

Reviews current theories on the etiology and development of the disorder. Considers behaviorally based diagnostic procedures for children and adults, as well as methods for clinical intervention, including procedures for parent interviewing and counseling, and multicultural concerns. Provides opportunities for observation, one focus being demonstration of intervention methods.

**CSD 819. Cognitive Communication Disorders (2).**

Addresses cognitive communication disorders that result from brain injuries (e.g., traumatic brain injury, right hemisphere stroke and dementia). The similarities and differences between cognition and the language are considered. Evaluation and treatment methods are introduced for adult clients with these acquired disorders.

**CSD 821. Educational Settings Practicum (1-3).**

Provides supervised clinical experiences in identification, diagnosis, evaluation, treatment, referral and counseling of children with speech or language impairments in a school setting. Demonstration of applied clinical skills in the elementary and/or secondary school levels is completed. Repeatable up to 3 credit hours. Prerequisite(s): CSD 809, CSD 816, CSD 822, medical clearance, liability insurance and departmental approval one year prior to enrollment.

**CSD 822. General Clinic Practicum (1-2).**

Provides supervised clinical experiences in settings with preschoolers, school-aged children and adults with a wide variety of communication disorders. Covers concepts of clinical practice, including diagnosis, data collection, report writing, counseling and treatment techniques. Repeatable for credit. Prerequisite(s): admission to CSD graduate program on a clinical track, medical clearance and liability insurance.

**CSD 823. Medical Settings Practicum (1-3).**

Provides supervised clinical experiences in individual and group therapy diagnostics, documentation, consultations and interdisciplinary staffings in a medical setting. Repeatable up to 3 credit hours. Prerequisite(s): CSD 810, CSD 811, CSD 812, CSD 822, medical clearance, liability insurance and departmental approval one year prior to enrollment.

**CSD 824. External Placement Practicum (1).**

Supervised clinical experiences in off-site locations for advanced clinical experiences in a variety of settings as well as a wide spectrum of speech and language disorders. Prerequisite(s): CSD 822, medical clearance, liability insurance and departmental approval.

**CSD 831. Auditory Assessment — SLP Practicum (1).**

Discusses proper hearing screening techniques for all age groups that are commonly conducted by speech-language pathology students. Students engage in practical experiences throughout the semester.

**CSD 832A. Critical Thinking in Clinical Practice I (3).**

Introduces critical thinking and problem solving related to clinical practice in speech-language pathology. Includes introduction to evidence-based evaluation/assessment, goal writing, data collection, treatment models and report writing. Case-based inquiry is used along with clinical role playing and cooperative/interprofessional learning. Prerequisite(s): admission to CSD graduate program.

**CSD 832B. Critical Thinking in Clinical Practice II (2).**

Provides further introduction to critical thinking and problem solving related to clinical practice in speech-language pathology. Content includes further discussion of evidence-based evaluation/assessment, goal writing, data collection, treatment models and report writing. Case-based inquiry is used along with clinical role playing and cooperative/interprofessional learning. Prerequisite(s): CSD 832A.

**CSD 832C. Critical Thinking in Clinical Practice III (2).**

Further development of critical thinking and problem solving related to clinical practice in speech-language pathology. Content includes further discussion of evidence-based evaluation/assessment, goal writing, data collection, treatment models and report writing. Case-based inquiry is used along with clinical role playing and cooperative/interprofessional learning. Prerequisite(s): CSD 832A, 832B.

**CSD 836. Clinical and Research Writing (1).**

Studies basic writing skills, scientific writing, and professional writing, particularly for assessment reports, treatment plans, progress reports and professional correspondence in speech-language pathology and audiology.

**CSD 837. Clinical Assessment of Speech-Language Disorders (1).**

Studies the basic diagnostic procedures used in speech-language pathology. Emphasizes criteria for test selection, techniques in test administration, and interpretation of test results. *Course includes diversity content.*

**CSD 838. Supervisory Process in Speech-Language Pathology and Audiology (1).**

Studies theories and strategies used in supervising student speech-language pathology and audiology clinicians. Discusses professional standards and methods for analyzing the teacher-learning process. *Course includes diversity content.*

**CSD 851. Medical Audiology (3).**

Introduces medical aspects of hearing impairment and other auditory disorders, emphasizing pathological changes of the auditory system and diagnosis of prevalent diseases related to the auditory system. Links up audiologic findings with ontologically diagnosed disorders. Introduces general information on embryologic development of various portions of the auditory system. Addresses fundamental knowledge on human genetics such as DNA structure and function, genes, modes of genetic transmission, hereditary deafness. Discusses application of genetic testing and prenatal diagnosis of genetic disorders. Prerequisite(s): CSD 806, or instructor's consent.

**CSD 854. Hearing Conservation (3).**

Discussion and labs concerning prevention of hearing loss in the workplace, military, community and recreation. Students focus on risk factors of major preventable hearing impairments including noise, chemical ototoxicity, measurement, calculation and reporting of noise levels; application of forensic audiology and government regulations; and implementing prevention programs through noise control, hearing testing, hearing protection devices, and worker and public education.

**CSD 855. Pediatric and Educational Audiology (3).**

Discussion and labs concerning identification, evaluation and intervention with infants, children and adolescents with hearing losses, other auditory problems, or developmental disabilities. Students focus on newborn hearing screening programs, auditory and global development of children and their importance in behavioral, functional and electrophysiological evaluation of hearing and listening; administering school hearing conservation and aural rehabilitation programs, classroom acoustics and amplification, interdisciplinary teamwork and collaboration with families and educators, and legal protections of hearing-impaired students, including individual education plans.

**CSD 860. Amplification I (3).**

Introduces the area of amplification. Students learn basic knowledge and skills in topics such as types of hearing aids, hearing aid components, hearing aid systems, electroacoustic performance and measurement, hearing aid plumbing, basic compression systems, probe microphone verification, hearing aid candidacy, problem solving, assessing outcomes and hearing aid orientation/counseling. Prerequisite(s): CSD 804.

**CSD 861. Amplification II (3).**

Students investigate topics such as advanced probe microphone measures, advanced signal processing, advanced hearing aid design, remote microphone options in amplification, and special amplification options, such as cochlear implants and bone-anchored hearing

aids. Students have the opportunity to interact with professionals representing various aspects of the industry. Prerequisite(s): CSD 860.

**CSD 863. Professional Seminar in Audiology (3).**

Explores current topics in audiology that delve into principles, practices, innovation, conduct and interpretation of research. Covers professional issues of the field that can impact the profession. Examines current professional, ethical and service issues that can impact the practice of audiology.

**CSD 866. Auditory Evoked Potentials (3).**

Provides information on the anatomic and physiologic basis of auditory-evoked potentials generated from the peripheral and central auditory systems. Discusses techniques for the administration and interpretation of auditory-evoked potentials, including cochlear potentials (ECoChG), the auditory brainstem responses (ABR), and the late-occurring evoked potentials (MLR, ALAEP, MMN, and P300). Using evoked potentials in intraoperative monitoring is also discussed. Lab component provides opportunities for hands-on learning and independently performing various auditory-evoked potential tests. Prerequisite(s): CSD 804, 806.

**CSD 868. Diagnosis and Management of Persons with Balance Disorders (3).**

Discussion and labs concerning an audiologist's role in diagnosing and managing persons with vestibular and balance disorders. Students focus on anatomy, physiology, development and disorders of vestibular and ocular-motor systems; subjective evaluations using interviewing and scaling; objective evaluations using ENG/VNG, rotational testing, posturography and vestibular evoked potentials; balance rehabilitation, and interdisciplinary collaboration and communication. Prerequisite(s): CSD 806 or instructor's consent.

**CSD 870. Current Topics in Amplification (2).**

Explores the role of evidence-based practice in the selection/provision of amplification. Facilitates the critical consumption of current original research in the area of hearing aids. Explores the perceptual effects of new technologies in the form of peer-reviewed journals, trade journals and hearing aid manufacturer's white papers. Discusses additional considerations for special populations. Prerequisite(s): CSD 860, 861.

**CSD 871. Current Topics in Auditory Disorders (2).**

Advanced audiology course covering the latest evidence-based research in evaluation and intervention with persons who have special auditory problems that are increasingly influential for audiologists now and in the future (e.g., tinnitus, hyperacusis, auditory neuropathy, age-related hearing loss, dual sensory loss).

**CSD 886. Clinical Practicum in Audiology (1-2).**

Supervised clinical practicum at the WSU Evelyn Hendren Cassat Speech-Language-Hearing Clinic and/or an off-campus clinical rotation site. Clinical expectations and responsibilities vary with the student's level of experience and the requirements of the placement site. Practicum assignments are determined by each student's competency needs, ASHA requirements and availability of rotation sites. Repeatable for a total of 8 credit hours. Prerequisite(s): departmental approval.

**CSD 890. Independent Study in Speech and Language Pathology or Audiology (1-4).**

Arranged individual, directed study in specialized content areas in speech and language pathology or audiology. Repeatable for a total of 4 credit hours. Prerequisite(s): instructor's consent prior to enrollment.

**CSD 891. Nonthesis Research (1-5).**

Benchmark for the applied research experience in the Doctor of Audiology and Master of Arts programs in communication sciences and disorders. A directed research project which may include literature searches, data collection or interpretation of data. Independent projects

must involve extensive data collection, analysis and preparation of a written manuscript. Repeatable for a total of 5 credit hours. Prerequisite(s): research methods course, departmental consent.

**CSD 892. Presentation of Research (1).**

Benchmark for the applied research experience in the Doctor of Audiology program in communication sciences and disorders. A directed research project which may include literature searches, data collection and interpretation of data. Culminates in the oral presentation of capstone project, which may also be prepared for publication. Repeatable for a total of 5 credit hours. Prerequisite(s): research methods course, departmental consent.

**CSD 895. Thesis Research (1-2).**

Repeatable for a total of 2 credit hours toward degree requirements. Prerequisite(s): instructor's consent.

**CSD 899. Thesis (1-2).**

Applied research experience in the Master of Arts program in communication sciences and disorders. Independent projects must involve extensive data collection, analysis and preparation of a written manuscript. Repeatable for a total of 1 credit hour toward degree requirements. Prerequisite(s): research methods course, departmental consent.

**CSD 935. Advanced Practicum in Communication Sciences and Disorders (3).**

Supervised internship in one or more of the following sections: client management, clinical supervision, academic instruction, research and clinical and program administration. Intended for doctoral students or advanced master's-level students. Repeatable for credit; more than one section may be taken concurrently.

**CSD 940. Advanced Selected Topics in Communication Sciences and Disorders (1-4).**

Advanced individual or group study in specialized areas of communication sciences and disorders. Intended for doctoral students or advanced master's-level students. Repeatable for credit.

**CSD 940G. Scholarly Integrity (1).**

Course meets two basic goals. First, it meets the Office of Research Integrity's (ORI) recommendations that all federally-funded researchers have formal ethics education in responsible conduct of research. Covers the nine recommended core areas plus additional topics. Second, the course acts as a forum and resource to discuss issues in research ethics. Participants are encouraged to think critically about what it means to be an ethical researcher and consider various sources of conflicts, such as ethical and compliance issues in areas of their careers related to research and education. Also identifies sources of information or guidance useful in making ethical decisions.

**CSD 940O. Advanced Selected Topics in CSD: Technology Design (1-4).**

Directed study into how technology impacts speech, language and social/emotional development in children. Emphasizes research methods being used to analyze such impacts, current therapeutic applications, current consensus findings, and areas requiring further study.

**CSD 940P. Cognitive Communication in Children (1-4).**

Covers selected topics relevant to the field on domains of cognitive communication in children and design of a novel research project. Discussions include executive functioning, attention, memory, and problem-solving skills while focusing on domains that predict later achievement (e.g., working memory). Intended for doctoral students.

**CSD 940Q. Cultural Diversity in CSD (1-4).**

Covers selected topics relevant to cultural diversity in communication sciences and disorders, and design of a novel research project. Intended for doctoral students.

**CSD 940U. Concepts of Critical Thinking (1-4).**

Engages doctoral students in the process of critical thinking and how it applies to communication sciences and disorder issues. Students learn how to apply critical thinking components to issues related to, but not limited to, concepts in teaching critical thinking, augmentative and alternative communication, and other related communication issues.

**CSD 940V. Alternative and Augmentative Technologies - Applications and Research (1-4).**

Covers selected topics relevant to the field on alternative and augmentative communication (AAC), and design of a novel research project. Discussions include fundamental principles of AAC assessment, research planning and implementation, data collection and interpretation, and potential problems faced by researchers.

**CSD 990. Advanced Independent Study in Speech and Language Pathology, Audiology or Speech Science (1-3).**

Arranged individual, directed study in specialized content areas in speech and language pathology, audiology or speech sciences. Repeatable for credit. Prerequisite(s): advanced standing and instructor's consent.

**CSD 992. Advanced Presentation of Research (1-3).**

Directed research project for doctoral students culminating in a manuscript appropriate for publication. Repeatable for credit.

**CSD 995. Research Proseminar (1).**

Weekly seminar of informal discussion and formal presentation of ongoing or planned research by the CSD faculty and doctoral graduate students. Goal is to provide CSD doctoral students with new and valuable knowledge and insights regarding how real-world research is performed. Repeatable for credit. Prerequisite(s): doctoral student standing.

**CSD 996. University Teaching (1).**

Weekly seminar on university teaching. The pedagogy, theories and research of teaching are discussed through presentation of readings, observation of teaching, and teaching experiences. The goal is to provide doctoral students with information and experience in university teaching. Repeatable for credit. Prerequisite(s): doctoral student standing.

**CSD 997. Audiology Residency (1-7).**

Full-time supervised clinical experience at an approved clinical facility. Repeatable for a total of 18 credit hours. Prerequisite(s): advancement to candidacy in the AuD program.

**CSD 999. Doctoral Dissertation (1-18).**

Successful completion of this course assures that the student has participated in an independent research activity that includes aspects of literature review, data collection and analysis, and scholarly writing. The expectation is that one or more manuscripts may be prepared for submission to scholarly journals based on this research experience. Course serves as the benchmark for the applied research experience in the Doctor of Philosophy program in CSD. Repeatable for credit, but total credit hours counted toward degree requirements shall not exceed 18 credit hours. Prerequisite(s): instructor's consent.

**DANC - Dance**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**DANC 501. Senior Modern Technique 4 (0.5-3).**

Advanced level continuation of DANC 401. Emphasizes professional technique and performance quality. Repeatable for credit. Undergraduate senior standing dance major only. Prerequisite(s): instructor's consent or by audition.

**DANC 505. Choreography 3 (2).**

Focuses on the choreographic process. Students create choreographic studies for more than one dancer using elements studied in Choreography 1 and 2 and exploring different choreographic approaches. Further exploration may include environmental, chance and collaborative choreographies and multimedia approaches. For undergraduate credit only. Prerequisite(s): DANC 405. Corequisite(s): appropriate level modern dance or ballet technique class.

**DANC 510. Senior Ballet Technique 4 (0.5-3).**

Advanced level continuation of DANC 410. Emphasizes professional technique and performance quality. Repeatable for credit. Undergraduate senior standing dance major only. Prerequisite(s): instructor's consent or by audition.

**DANC 535. Jazz Dance 4 (3).**

Advanced level. Continuation of DANC 435. Emphasizes professional technique and performance quality. Repeatable for credit. Prerequisite(s): instructor's consent or by audition.

**DANC 545. Methods of Teaching Dance (2).**

Develops teaching skills for elementary schools, high schools, recreation centers, private and professional schools, and universities through lesson planning and in-class teaching practice. Prerequisite(s): DANC 301 or DANC 310.

**DANC 580. Capstone Project (1-2).**

Capstone of a dance major's educational experience. Focuses on the process of creating a final project for the completion of the dance major under the supervision of a dance faculty mentor. The course comprises a final project and research paper that demonstrates skill in self-evaluative writing, and knowledge of principles learned in the dance degree curriculum, culminating in a concert or presentation, and oral review with the dance faculty. May be taken concurrently with DANC 505 with instructor's consent. Repeatable for credit. For undergraduate credit only. Prerequisite(s): instructor's consent. Corequisite(s): appropriate level technique class, senior standing.

**DANC 645. Practicum in Teaching Dance (1).**

Applies and implements teaching skills for elementary schools, high schools, recreation centers, private and professional schools, and universities through WSU dance studio assistantship, lesson planning and syllabus development, guest teaching, and additional assigned in-practice tasks. Prerequisite(s): DANC 545.

**DANC 675. Directed Study (1-3).**

Individual study or projects. Repeatable for credit with departmental consent. Prerequisite(s): departmental consent.

**DANC 690. Special Topics in Dance (1-6).**

For individual or group instruction. Repeatable for credit with departmental consent.

**DANC 750. Dance Workshop (1-4).**

Variable credit dance course for WSU graduate students, alumni and the Wichita community. Credit hour enrollment determines the varying course requirements. Repeatable for credit. Technique courses can be taken with instructor's consent.

**DS - Decision Sciences**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**DS 690. Seminar in Selected Topics (1-5).**

Repeatable for credit with departmental consent. Prerequisite(s): DS 350 with a grade of C+ (2.300) or better, junior standing, advanced standing.

**DS 701. Introduction to Supply Chain Management (SCM) (0.5).**

Enables students to understand the basics of integrated business logistics and supply chain management.

**DS 702. Introduction to Spreadsheet Modeling (0.5).**

Covers how to create spreadsheet models in Excel. Regardless of title (manager, supervisor, purchasing agent, etc.) and functional area (operations, supply chain, finance, etc.), students learn how to use Excel to summarize, report and analyze data — a critical set of skills in today's data-driven business environment.

**DS 703. Introduction to Forecasting (0.5).**

Predictive analytics is one of the three key parts of analytics (descriptive, predictive and prescriptive), and deals with forecasting. Course introduces students to time series analysis, and the averaging techniques of forecasting, including moving average, and exponential smoothing. Also introduces the metrics for error analysis in forecasting.

**DS 704. Introduction to Inventory Management (0.5).**

Overview of the concepts, tools and techniques used in managing inventory in a system.

**DS 705. Basics of Analytics (1).**

Covers basic methods for the analysis of existing datasets. Commonly used techniques for the analysis of quantitative and qualitative data are introduced. Topics include: data preprocessing, linear regression, logistic regression, classification, and cluster analysis. Students are introduced to R, an open source data mining software. Lectures use R and Microsoft Excel to guide the analysis, but students are welcome to use their preferred software package in solving assignment problems and evaluations.

**DS 706. Introduction to Demand Management (1).**

Focuses on fundamentals of demand management and introduces collaboration, consensus and integration issues of demand management. Includes strategies for managing uncertainty and the role of technology.

**DS 707. Introduction to Supply Management (0.5).**

Exposes learners to the latest trends and issues dealing with supply management. Covered topics include sourcing management, purchasing management, financial and operational strategies for procurement, supplier base management, and risks and sustainability in procurement.

**DS 708. Advanced Forecasting (1).**

Predictive analytics is one of the three key parts of analytics (descriptive, predictive, and prescriptive), and deals with forecasting. Course goes beyond the averaging techniques for forecasting, and covers linear regression for forecasting time series with trend, and the decomposition method for forecasting time series with trend and seasonality.

**DS 709. Introduction to Project Management (0.5-1).**

Establishes fundamental guidelines for defining the process of project management and designing time-constrained projects. Covers core methodology for managing complex projects on time.

**DS 710. Supply Chain Management Network Planning (1).**

Enables students to understand the basics of network planning in distribution networks, network design, global network design, and transportation network design.

**DS 711. Performance Management in Supply Chains (1).**

Performance management — a standard practice in organizations — is presented and promoted through business processes, methodologies, metrics and technologies used by an organization to measure, monitor and manage business performance. Covers a broad category of processes, technologies, applications and metrics for managing the performance of supply chains. Emphasizes the criticality of creating and maintaining an enterprise-level culture of evidence/fact-based management and decision making. Covers concepts and frameworks related to performance management in supply chains and exposes students to supporting technologies used by contemporary organizations.

**DS 712. Advanced Demand Management (1).**

Case-based course focusing on implications of demand management and elements of supply chain management in an effort to optimize revenue, inventory costs and customer service levels via promotional activities and intelligence.

**DS 713. Integrated Supply and Demand Management (1).**

Enables students to understand how integrated supply and demand management impacts design of an optimized supply chain.

**DS 714. Strategic Management in Supply Chain Management (0.5).**

Presents innovative strategies and best practices for strategically managing and optimizing supply chains to improve supply chain performance.

**DS 715. Supply Chain Management A (0.5).**

Uses simulation games to introduce different concepts in strategic supply chain management.

**DS 716. Supply Chain Management B: Simulation Game (0.5).**

Uses simulation games to discuss different concepts in strategic supply chain management.

**DS 725. Global Procurement and Outsourcing (3).**

Designed to expose learners to the latest supply chain trends and issues dealing with global purchasing and sourcing. Covered topics include global sourcing management, purchasing management, financial and operational strategies for sourcing and procurement, diversity in sourcing and procurement, supplier base management, risks in sourcing and procurement, ethical and sustainable outsourcing. Real-life experience and practices by guest speakers from area multi-national companies (Koch, Cargill, Spirit, Cessna and other aviation companies, etc.) are featured.

**DS 750. Workshop in Decision Sciences (1-4).**

Prerequisite(s): junior standing.

**DS 755. Project Management (3).**

This hands-on and project-based technology course establishes fundamental guidelines for defining the process of project management and designing time-constrained projects. Covers core methodology for managing complex projects on time. Uses a software tool. Prerequisite(s): junior standing, advanced standing; students are strongly recommended to take DS 350 before taking DS 755.

**DS 790. Global Logistics and Transportation Management (3).**

Project-based course offers experimental decisions to challenging problems with global implications for an industry. Topics include intermodal transportation, route selection, transportation regulations,

contingency planning, international business ethics and regulations on logistics and distribution.

**DS 850. Operations Management (3).**

Develops an understanding of the operations function in a business and how it interfaces with other major functions in business. Students gain an appreciation of the strategic importance of operations and how a firm can gain competitive advantage through world-class performance by operations in delivering high-quality, cost-competitive products and services. Builds a knowledge base of the concepts, tools and techniques related to designing, managing and improving operations. Helps managers, regardless of functional specialization, gain an operations perspective. Prerequisite(s): calculus and statistics.

**DS 860. ERP: Enterprise Resource Planning (3).**

Overview of Enterprise Resource Planning (ERP) and related systems like CRM. E-commerce systems are designed to assist an organization with integrating and managing its business processes. ERP systems can be expensive and time-consuming to implement. Topics include the ERP life cycle for implementation and change management. Students get hands-on exercises with ERP software, like SAP, if available. Prerequisite(s): DS 850 or equivalent.

**DS 865. Supply Chain Management (3).**

Introduces concepts, models and solution approaches critical to managing a supply chain. Focuses on understanding how supply chain design and operation impact the performance of the company and its competitive advantage. Topics include strategy development, profitability, demand forecasting, inventory management, facility location, warehousing, transportation, network design and information sharing. Prerequisite(s): DS 850 or instructor's consent.

**DS 870. Risk Management in Global Supply Chains (3).**

For a successful global company, risk management is an essential element. Course is designed to explore and outline the best practices in identifying, assessing and mitigating various risks stemming from the internal and external environments of a supply chain. Topics include risk management concept and process, risk management strategies, action based risk management framework, operational, tactical and strategic risk management, effect of risks on financial performances, and best industrial applications of risk management. Prerequisite: DS 865 or IME 783, advisor's consent.

**DS 890. Seminar in Special Topics (1-3).**

Repeatable for credit with departmental consent.

**DS 890P. Lean Practices in Supply Chain Management (3).**

Uses articles, cases and best practices on how global companies in any industry deploy lean thinking and tools in order to achieve significant improvements in cost, lead times and quality. Aims to equip students with principles of lean thinking, value creation and streaming, lean implementation challenges involved in supply chain management, and lean tools for supply chains. Repeatable twice for a total of 6 credit hours. Prerequisite(s): DS 865 or IME 783.

**DS 890X. Data Visualization (0.5).**

Introduces data visualization. Visualizations are graphical depictions of data that can improve understanding, sharing and decision making. Students are exposed to information on selecting appropriate display methods for different data types to improve communication and sharing. Students learn various design and visualization approaches that enhance comprehension of data and aid in effective decision making.

**DS 891. Directed Studies (1-5).**

Prerequisite(s): departmental consent.

**DS 896. Master's Directed Project (1-3).**

Open to students enrolled in the master's program in management science and supply chain management who have chosen the project option. Prerequisite(s): academic advisor's consent.

**DS 897. Master's Thesis (1-6).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Open to students enrolled in the master's program in management science and supply chain management who have chosen the thesis option. Repeatable for credit. Prerequisite(s): thesis advisor's consent.

**ECON - Economics**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**ECON 570. International Political Economy (3).**

Cross-listed as POLS 570. Examines policy decisions regarding exchanges of trade, money and labor that span national boundaries. Studies the interaction of politics and economics at the international level, as well as the modern history of the global economy. Economics often studies the material benefits and costs of different policies. Political science asks why these policies exist in the first place with a focus on who gets the benefits, who pays the costs, and how decisions about allocating benefits and costs are made. *Course includes diversity content*.

**ECON 611. Economics of Sports (3).**

Inquiry into the economic aspects of professional and intercollegiate sports. Includes industrial organization of sports, public finance of sports, and the labor economics of sports, as well as the unique competitive nature of the sports enterprise. Not applicable toward the MA in economics. Prerequisite(s): junior standing.

**ECON 622. Economies in Transition (3).**

How are economies affected by sociopolitical realities like communism, capitalism and regime change? Course considers the economic histories of three countries in particular—the former Union of Soviet Socialist Republics (USSR), India and China—and how they are transitioning from centrally planned control economies mostly closed to foreign trade to decentralized market economies mostly open to foreign trade. Economic theory and exposition are used to investigate the lessons these countries learned from planning their economies, the difficulties of development and opening borders to trade, and the modern economic realities these nations face. Prerequisite(s): for undergraduate students, ECON 201, ECON 202 and junior standing; for graduate students, the equivalent of ECON 201 and ECON 202.

**ECON 627. Economic History of the United States (3).**

Cross-listed as HIST 515. Analysis of the basic factors in economic growth. Explores agriculture, trade and commerce, industrial development and the changing role of the government in economic activity. Prerequisite(s): ECON 201 and junior standing.

**ECON 660. Labor Economics (3).**

Introduces labor economics surveying both theoretical and empirical research in this field. Includes labor markets, wage determination and human capital theory. *Course includes diversity content*. Prerequisite(s): for undergraduate students, ECON 201, 202, junior standing; for graduate students, the equivalent of ECON 201, 202.

**ECON 672. International Economics and Business (3).**

Cross-listed as IB 561. Surveys the economic foundations of international trade, finance and investment. Includes foreign exchange markets, regional integration, trade theories and instruments, U.S. trade

policies and treaties, multinational companies, immigration, as well as differences in cultural, political and economic systems. Includes current events. *Course includes diversity content*. Prerequisite(s): ECON 201, 202, junior standing.

**ECON 674. International Financial Management (3).**

Cross-listed as FIN 625 and IB 625. Studies the international financial and monetary system, emphasizing currency markets. Also examines market instruments and techniques, including synthetic and derivative securities and their application to management of currency risk in international trade and finance. Prerequisite(s): FIN 340 with a grade of C or better, junior standing.

**ECON 678. Behavioral Economics (3).**

This course seeks to provide a comprehensive understanding of how behavioral economics is applied in the laboratory, field and corporate world. Behavioral economics is a relatively young field, and firms have begun implementing it within the last decade. In this course, students gain an overview of the topics in this fast-growing field by sampling the most significant and interesting contributions. This implies a lot of reading, so a secondary goal of the course is to learn how to efficiently digest and communicate the content of journal articles. To this end, students present a paper on the reading list in class. In addition, the final project requires students to design and present their own behavioral projects.

**ECON 692. Group Studies in Economics (1-3).**

Repeatable for credit with departmental consent. Prerequisite(s): for undergraduate students, ECON 201, 202, junior standing; for graduate students, the equivalent of ECON 201, 202.

**ECON 709. Urban Economics (3).**

Cross-listed as RE 709 and PADM 709. Surveys the economic structure and problems of urban areas on both the microeconomic and macroeconomic levels. Stresses the application of regional economic analysis in the study of urban areas as economic regions. Prerequisite(s): ECON 201, 202, junior standing.

**ECON 722. Topics in Microeconomics (3).**

Further exploration of selected microeconomics topics. Includes a review of calculus with applications of unconstrained and constrained optimization in microeconomics. Topics include: consumer and producer behavior, game theory, auctions, interest rates, investment and capital, behavior under uncertainty, and aspects of contract theory (asymmetric information and moral hazard), and market failure associated with externalities and public goods. Prerequisite(s): ECON 302 and a calculus course like MATH 144 with a minimum grade of C+ or higher in each.

**ECON 731. Applied Econometrics (3).**

Studies regression techniques through business, finance and economics examples. Reviews the fundamentals of statistics and covers practical model building, data collection, use of statistical software packages, interpretation of regression results and various diagnostic tests. Prerequisite(s): for undergraduate students, ECON 201, 202, 231 each with a grade of C+ (2.300) or better, junior standing; for graduate students, the equivalent of ECON 201, 202, 231 each with a grade of C+ (2.300) or better.

**ECON 740. Monetary Economics and Policy (3).**

Studies monetary theory and policy. Analyzes historical and contemporary monetary issues using macroeconomic theories and empirical studies. Prerequisite(s): ECON 340, junior standing.

**ECON 753AE. 2019 Financial Fitness Extravaganza (1).**

Designed to help middle school and high school teachers responsible for teaching personal finance to update their skills, learn new pedagogies, and develop standards-based lessons in the areas of

spending and saving, credit and debt, employment and income, investing, risk management and insurance, and financial decision making. Teachers receive the newly revised Financial Fitness for Life curriculum. This workshop is sponsored by the Fred C. and Mary R. Koch Foundation in partnership with the Kansas Council on Economic Education and the Council on Economic Education.

**ECON 753AF. Real Life Applications for Social Sciences 2019 (1).** Free professional development event designed for U.S. history, U.S. government and economics teachers. Sessions address Kansas Social Studies Standards 1-4 and the standards in the C3 framework including: (1) U.S. government issues: economics sanctions, immigration, the U.S. Constitution, culture and trade. (2) U.S. history issues: immigration, fiscal policy, foreign policy, morality and markets, and civil rights. (3) Economics issues: six principles of economics, economic indicators, and economics of government policies.

**ECON 753AG. K-8 Tools for Teaching Personal Finance 2019 (0.5).**

Free professional development event designed for K-8 Kansas certified teachers. Teachers take home grade appropriate resources for teaching personal finance in K-8 classrooms while invigorating basic subjects such as language arts, math, science and social studies.

**ECON 753AI. K-8 Tools for Teaching Economics 2019 (0.5).**

Free professional development event designed for K-8 Kansas certified teachers. Teachers take home grade appropriate resources for teaching economics in K-8 classrooms while invigorating basic subjects such as language arts, math, science and social studies.

**ECON 753AJ. Understanding Fiscal Responsibility (0.5).**

This professional development workshop is designed for 9-12 Kansas certified teachers. Teachers take home resources to teach students how to think critically about public policy using these Understanding Fiscal Responsibility lessons focusing on government institutions, programs, the Federal Reserve, Social Security and events such as the Panic of 1893. These lessons enable students to become informed citizens as they consider the tradeoffs involved in setting public policy and learn to articulate their own views by evaluating primary and secondary sources, engaging in group activities and discussions, and writing brief essays.

**ECON 753AK. Social Studies from an Economics Perspective (1).**

This professional development event is designed for 9-12 Kansas certified teachers. Teachers take home resources designed specifically for Kansas geography, world history and economics teachers to help provide an additional economics perspective needed for the Kansas HGSS standards and new social studies assessments, including the Virtual Economics flash drive.

**ECON 753AL. Financial Fitness Extravaganza 2020 (1).**

This class is designed to help middle school and high school teachers responsible for teaching personal finance to update their skills, learn new pedagogies and develop standards-based lessons in the areas of spending and saving, credit and debt, employment and income, investing, risk management and insurance, and financial decision making. Teachers receive the Virtual Economics flash drive.

**ECON 765. Public Sector Economics (3).**

Cross-listed as PADM 765. Examines theories of economic decision making and institutions, with a focus on how economic tools can be used to inform policy and management in the public and nonprofit sectors. Covers economic principles and discusses market failures and public policies intended to correct or alleviate market failure. Economic decision making tools for public and nonprofit management are also introduced.

**ECON 777. Game Theory and Mechanism Design (3).**

Provides students a firm foundation in traditional game theory and mechanism design. Game theory is the language of mathematizing interactions between individual decision makers, but it can also be used to mathematize decisions more abstractly, like how to most efficiently route (internet) network traffic or maximize information diffused over a (social) network. Computation is a powerful tool in the hands of a game theorist, as they can model strategic decision-making, its effect on system indicators like profit/loss/information flow/etc, and can constructively engineer and test changes to the system meant to improve performance. Students discuss limitations to design, in particular due to computational complexity. Prerequisite(s): MATH 144 or equivalent.

**ECON 781. Cooperative Education (1).**

Provides the graduate student with a field placement which integrates theory with a planned and supervised professional experience. Programs must be formulated in consultation with appropriate graduate faculty. Repeatable for credit up to 3 hours. May not be used to fulfill degree requirements.

**ECON 800. Analysis of Economic Theory (3).**

Intensive analysis of micro- and macroeconomic principles. Not for graduate credit in the MA program in economics. Prerequisite(s): departmental consent.

**ECON 801. Macroeconomic Analysis (3).**

In-depth examination of contemporary macroeconomic theories. Includes economic growth, short run classical and Keynesian theories of fluctuations, real business cycle theory, inflation, monetary policy, and new classical and new Keynesian theories. Prerequisite(s): calculus and ECON 301.

**ECON 803. Analysis of Business Conditions and Forecasting (3).**

Intensive study of research methodologies and forecasting for real life business decision making. Covers formulation of research questions, specification of models, collection of time series and survey data, applications of forecasting techniques, and interpretation and communication of the results. Prerequisite(s): ECON 731 or instructor's consent.

**ECON 804. Managerial Economics (3).**

Surveys theoretical and analytical tools of economics that are useful in decision making by managers. Prerequisite(s): ECON 201, 202, or 800; one course in statistics; one course in calculus.

**ECON 811. Analysis of Macro-Economic Theory (1.5).**

Intensive analysis of macro-economic principles. Not for graduate credit in the MA program in economics. Prerequisite(s): consent of MBA office.

**ECON 812. Analysis of Micro-Economic Theory (1.5).**

Intensive analysis of micro-economic principles. Not for graduate credit in the MA program in economics. Prerequisite(s): consent of MBA office.

**ECON 865. State and Local Government Finance (3).**

Analyzes state and local government expenditure and revenue systems, introduces state and local financial administration. Students must complete computational work requiring at least an intermediate level of competence using spreadsheet software such as Excel. Prerequisite(s): ECON 765 or instructor's consent.

**ECON 870. International Capital Markets (3).**

Case study of the contemporary and business-related issues of international finance and investment. Includes foreign exchange markets, European integration, international trade organizations and monetary systems, and emerging markets. Prerequisite(s): one of

the following courses: ECON 731 and 672 (IB 561) or ECON 674 (FIN 625).

**ECON 893. Research Project (1-3).**

Student-driven research experience to address a specific research question. This terminal research project should be formulated by the student and discussed with a graduate faculty member. Repeatable for credit. Prerequisite(s): departmental consent.

**ECON 896. Thesis (1-3).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for credit.

**ECON 897. Project Completion (1).**

Designed for students who need additional time to complete either their directed study project or thesis. Prerequisite(s): ECON 891 or 896.

## EDUC - Education

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**EDUC 500. Dimensions of Wellness (3).**

Students holistically examine meanings of wellness, including relevant biological, psychological and social concepts. As a result, students gain an understanding of how to identify, program and promote individual, organizational and community wellness initiatives.

**EDUC 505. Emergency and Public Service Industry for Prior Learning III (6-12).**

Students in the Bachelor of Applied Science (BAS) in workforce leadership and applied learning, emergency and public service leadership program may receive up to 36 upper-division WSU credit hours by using industry-specific courses from their community college or technical school coursework, and/or industry-specific experience and/or training. These credit hours serve as concentration hours for the program. For majors only.

**EDUC 507. Managerial Leadership (3).**

Introduces the concepts, responsibilities and styles of managerial leadership. Students learn about the various components of organizations and how to apply managerial decision making and leadership theories in an environment of complexity and diversity.

**EDUC 520. Principles of Learning Environments (3).**

Focuses on human growth and development, and learning theory with special attention paid to motivation, learning environment management, human behavior, principles of cognition, and their implications for workforce trainers. Examines the biological and societal influence on these factors, emphasizing the application of these principles to a variety of workforce environments.

**EDUC 540. Leading for Creativity (3).**

Focuses on the practical application of creative ideas and how they are related to organizational results. Specifically, students learn strategies for promoting, capturing and harnessing creativity for measurable results.

**EDUC 550. Applied Studies Apprenticeship I (3-6).**

Provides the student an applied learning experience, which integrates theory with a planned and supervised professional experience in the BAS-Workforce Leadership and Applied Learning program. Student must document at least 480 hours of applied learning. Repeatable for a total of 6 credit hours. For undergraduate credit only. Prerequisite(s): program admission and advisor's consent.

**EDUC 600. Applied Studies Apprenticeship II (3-6).**

Applied learning experience, with both a planned and supervised professional experience and documented learning outcomes in the BAS-Workforce Leadership and Applied Learning program. Student must document at least 640 hours of applied learning. Repeatable for a total of 6 credit hours. For undergraduate credit only. Prerequisite(s): program admission and advisor's consent.

**EDUC 602. Human-Centered Service and Design (3).**

Focuses on how to humanize the design-thinking process concentrating on empathy for end users. Students learn how to anticipate product impact and the importance of understanding not only how to observe user behavior, but also to incorporate that information in future products or services. Students synthesize a variety of theoretical concepts focusing on organizational or workplace applications.

**EDUC 610. Collaboration and Leadership (3).**

Helps students identify team needs, set expectations for collective and individual development, and continuously improve their leadership skills. Students learn tools, such as servant leadership, which will add value to the roles and behaviors of their team members, and define their team's purpose. Students learn how to identify their own leadership style and the importance of culture, values and ethical decision-making within an organizational environment.

**EDUC 618. Education and Workplace Training (3).**

Helps students understand the fundamental issues associated with learning, transfer of information, how to understand the learner, and how to design organizational interventions with a special focus on employee development. Students are exposed to current issues and best practices associated with workplace training and professional growth and development.

**EDUC 625. Interpersonal Communication in the Workplace (3).**

Shows students the importance of effective interpersonal communication in today's modern workplace. Students learn how to recognize various communication styles and effective ways to adapt communication to meet the needs of co-workers, bosses and customers. In addition, students improve their understanding of nonverbal communication and individual influences on communication skills. Finally, students learn techniques for dealing with negative situations, handling difficult individuals, presentations and meeting techniques.

**EDUC 751. Special Studies (0.5-3).**

Professional development course. EDUC 751 is an umbrella course created to explore a variety of subtopics differentiated by letter (e.g., 751A, 751B, etc.). Students should enroll in the lettered courses with specific topics in the titles rather than in this root course.

**EDUC 751A. Talent Development and the Workplace (3).**

Introduces key concepts and systems associated with understanding, motivating and developing individual employee skill sets. In addition, students learn useful skills for developing workplace environments emphasizing formal and informal learning, while focusing on how to implement concepts, systems and models into everyday organizational practices.

**EDUC 751B. Teaching as Leadership (3).**

Identifies the fundamental forms of teaching, mentoring and educational processes within organizational environments. Students see how teaching and learning are related to leadership within a variety of organizations.

**EDUC 751C. Organizational History and Leadership (3).**

Students learn the foundational concepts, theories and methodologies for examining historical processes within a variety of organizations. The course highlights how understanding an organization's history is

connected to strong organizational cultures, productive community relationships and future decision-making strategies.

**EDUC 751D. Organizational Ethics and Decision-Making (3).** Students learn the foundational concepts, theories and methodologies for examining ethical dilemmas and evaluative processes within a variety of organizations. The course focuses on examining underlying values and elements of organizational decisions, processes and relationships. Students engage in not only ethical discussions, but also apply ethical models, concepts and frameworks to real-world case studies. Ultimately, students use these concepts, models and case studies to examine their own leadership and decision-making styles and processes within organizational environments.

**EDUC 751E. Leading a Remote Workforce (3).** Introduces important concepts associated with workforce productivity. Students learn about the psychological needs necessary to lead a workforce remotely, useful tools to better engage and motivate employees, how to manage autonomous working environments, and useful tools to maintain and/or increase professional productivity.

## EE - Electrical Engineering

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**EE 577. Special Topics in Electrical and Computer Engineering (1-4).** New or special courses presented on sufficient demand. Repeatable for credit. Prerequisite(s): departmental consent.

**EE 577G. Introduction to Error Control Coding (3).** Introduces the student to the fundamentals of error-correcting codes and their applications in communications and data storage systems. Its goal is to develop the ability to design and analyze classical and modern methods of error-control coding. Prerequisite(s): MATH 511 or IME 254 (or equivalent).

**EE 577L. Renewable Energy Engineering (3).** Analysis and design of renewable energy systems, including solar, wind, hydroelectric, geothermal and biomass systems. Analysis and design of energy storage systems that integrate with renewable energy systems. Integration of renewable energy systems with the electric power supply system. Prerequisite(s): EE 282 or ENGT 320.

**EE 577M. Real-Time Signal Processing Applications (3).** In most digital signal processing operations, it is assumed that we have sampled signals which are considered as digital signals. Often in classroom educations, these signals are usually stored for subsequent retrieval or synthesized when needed, for convenience for demonstrations or computer-based assignments. However, this does not allow for real-time processing of the signals. Real-time processing means guaranteed delivery of data by a certain time. This undergraduate elective course is hardware based with hands-on simulations to introduce students to the analysis, design, and implementation of real-time digital signal processing (DSP) applications. The course first briefly introduces basic DSP theory, then focuses on a practical, step-by-step framework that provides hands-on experience in real-time DSP to reinforce the basic DSP theory. Students are expected to learn how to use/apply the DSP theory in real-time applications. Prerequisite(s): EE 383 or equivalent, CS 211. Corequisite(s): EE 577ML.

**EE 585. Senior Design Project I (2).** 3 Lab hours. Design project under faculty supervision chosen according to the student's interest. Does not count toward a graduate degree in electrical engineering, computer engineering or computer science. For undergraduate credit only. This class should be taken

in the semester prior to the one in which the student is going to graduate. Prerequisite(s): senior standing, CS 580 or EE 492. Pre- or corequisite(s): PHIL 354 or PHIL 385.

**EE 586. Introduction to Communication Systems (4).** 3 Classroom hours; 2 Lab hours. Fundamentals of communication systems; models and analysis of source, modulation, channel and demodulation in both analog and digital form. Reviews Fourier series, Fourier transform, DFT, probability and random variables. Studies in sampling, multiplexing, AM and FM analog systems, and additive white Gaussian noise channel. Additional topics such as PSK and FSK digital communication systems covered as time permits. Prerequisite(s): EE 383, IME 254. Corequisite(s): EE 586L.

**EE 595. Senior Design Project II (2).** 3 Lab hours. Does not count toward a graduate degree in electrical engineering, computer engineering or computer science. This is the second part of a sequence of two courses (EE 585 and EE 595) that have to be taken in two consecutive semesters. Students failing this course must retake the EE 585 course. For undergraduate credit only. Prerequisite(s): EE 585.

**EE 598. Electric Power Systems Analysis (3).** Analysis of electric utility power systems. Topics include analysis and modeling of power transmission lines and transformers, power flow analysis and software, and introduces symmetrical components. Prerequisite(s): EE 488.

**EE 610. Introduction to Quantum Computing (3).** Introduces the theory and practice of quantum computing. Topics covered include the basics of quantum mechanics, Dirac notation, quantum gates and circuits, entanglement, measurement, teleportation and algorithms. Prerequisite(s): MATH 511.

**EE 684. Introductory Control System Concepts (3).** Cross-listed as ME 659. Introduces system modeling and simulation, dynamic response, feedback theory, stability criteria, and compensation design. Prerequisite(s): (1) EE 282 and MATH 555, or (2) EE 383.

**EE 688. Power Electronics (4).** 3 Classroom hours; 2 Lab hours. Deals with the applications of solid-state electronics for the control and conversion of electric power. Gives an overview of the role of the thyristor in power electronics application and establishes the theory, characteristics and protection of the thyristor. Presents controlled rectification, static frequency conversion by means of the DC link-converter and the cyclo converter, emphasizing frequency, and voltage control and harmonic reduction techniques. Also presents requirements of forced commutation methods as applied to AC-DC control and firing circuit requirement and methods. Introduces applications of power electronics to control AC and DC motors using new methods such as microprocessor. Prerequisite(s): EE 383, 488, 492. Corequisite(s): EE 688L.

**EE 697. Electric Power Systems Analysis II (3).** Analysis, design, modeling and simulation of high-voltage electric power transmission systems and rotating generators. Simulations include short circuit studies, economic dispatch and transient stability. Prerequisite(s): EE 598.

**EE 726. Digital Communication Systems I (3).** Presents the theoretical and practical aspects of digital and data communication systems. Includes the modeling and analysis of information sources as discrete processes; basic source and channel coding, multiplexing and framing, spectral and time domain considerations related to ASK, PSK, DPSK, QPSK, FSK, MSK, and other techniques appropriate for communicating digital information in both base-band and band-pass systems; intersymbol interference, effects

of noise on system performance, optimum systems and general M-ary digital systems in signal-space. Prerequisite(s): EE 586 and 754.

**EE 754. Probabilistic Methods in Systems (3).**

Course in random processes designed to prepare the student for work in communications controls, computer systems information theory and signal processing. Covers basic concepts and useful analytical tools for engineering problems involving discrete and continuous-time random processes. Discusses applications to system analysis and identification, analog and digital signal processing, data compression parameter estimation, and related disciplines. Prerequisite(s): EE 383 and IME 254.

**EE 777. Selected Topics in Electrical Engineering (1-4).**

New or special courses presented on sufficient demand. Repeatable for credit. Prerequisite(s): departmental consent.

**EE 777M. Optimization Techniques for Cyber-Physical Systems (3).**

This course aims to provide necessary theory and methods to solve optimization problems with the emphasis on cyber and physical systems. Integration of computation, communication, and physical systems to improve engineered systems requires understanding of basic optimization techniques and advanced optimization algorithms. This course covers basic optimization theory, convex optimization, heuristic optimization techniques, constraint relaxation and applications. Prerequisite(s): MATH 511 and MATH 555 or graduate standing.

**EE 777OL. Digital Communications I Lab (1).**

Lab objective is for the students to implement and explore each block in a wireless communications system signal chain by combing LabVIEW software and the National Instrument (NI) Universal Software Radio Peripheral (USRP) hardware. Covers pseudorandom bit generation, path loss in wireless radio frequency (RF) communication channel, forward error correction (FEC) channel coding, wireless digital communications modulation, demodulation, synchronization (timing recovery), bit error rate (BER), and a multiple-input and single-output (MISO) wireless system.

**EE 782. Digital Signal Processing (3).**

Presents the fundamental concepts and techniques of digital signal processing. Time domain operations and techniques include difference equations and convolution summation. Covers Z-transform methods, frequency-domain analysis of discrete-time signals and systems, discrete Fourier transform, and fast Fourier transform. Emphasizes the frequency response of discrete-time systems and the relationship to analog systems. Prerequisite(s): EE 383.

**EE 792. Linear Systems (3).**

Reviews mathematics relevant to state-space concepts. Formulation of state-variable models for continuous-time and discrete-time linear systems. Concepts of controllability, observability, stabilizability and detectability. Pole placement and observer design. State transformation techniques and their use in analysis and design of linear control systems. Prerequisite(s): EE 684 or ME 659.

**EE 796. Electric Power Distribution (3).**

Analysis, design, modeling and simulation of radial medium-voltage electric power distribution systems. Simulations include power flow and short circuit. Prerequisite(s): EE 598.

**EE 826. Digital Communication Systems II (3).**

Studies modern digital communication systems. Discusses topics such as carrier and symbol synchronization techniques, fading multipath channels, frequency-hopped spread spectrum systems, smart antenna array systems, space time codes (STC), space-time block codes (STBC), multi-input multi-output (MIMO), orthogonal frequency

division multiplexing (OFDM) systems, and multi carrier code division multiple access (MC-CDMA) communication. Prerequisite(s): EE 726.

**EE 836. 5G Wireless Communications (3).**

Covers the fundamental and advanced technologies for future fifth generation (5G) wireless communication systems. Studies the emerging wireless communication technologies such as small cells, coordinated multipoint (CoMP), massive multiple-input multiple-output (Massive-MIMO), millimeter wave (mmWave), device-to-device (D2D), etc. Combinations of these technologies may support future explosive higher data rates, lower latency, and larger coverage area. Prerequisite(s): EE 726.

**EE 856. Information Theory (3).**

Introduces information theory for students of communication theory, computer science and statistics. Introduces the definitions of entropy, relative entropy and mutual information. Discusses asymptotic equipartition property, entropy rates of a stochastic process, channel capacity, differential entropy and Gaussian channel. Prerequisite(s): EE 754.

**EE 864. Multi-Service Over IP (4).**

3 Classroom hours; 2 Lab hours. Advanced networking course; deals with challenges and solutions associated with sending voice, video and data (multi-service) over IP. Includes telephony signaling, call routing and dial plans, measuring voice quality, voice digitization and coding, quality of service issues, and current research. Hands-on lab allows students to design, troubleshoot and test different VOIP scenarios. Prerequisite(s): CS 764.

**EE 876. Master's Thesis (1-6).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for credit up to 6 credit hours. Prerequisite(s): MS thesis advisor's consent.

**EE 877. Special Topics in Electrical Engineering (2-3).**

New or special courses are presented under this listing on sufficient demand. Repeatable for credit. Prerequisite(s): departmental consent.

**EE 877AA. Information Theoretic Security (3).**

Presents a framework for secure communication, which makes no assumptions on the computational power of a potential adversary. Begins with fundamental tools from information theory and cryptography, which provide the basis for modern research on security at the physical layer and secret-key generation. Various models and applications are discussed. Prerequisite(s): IME 254.

**EE 877AB. Signal Processing and Machine Learning for Brain-Computer Interface (3).**

Presents a framework on machine learning algorithms in general, with a focus on brain-computer interface system. Students learn machine learning concepts such as feature extraction, and classification, and get a hands-on experience with implementing signals into feature spaces, such as principal component analysis, and classifiers such as support vector machine. Prerequisite(s): EE 782 and EE 754.

**EE 877AC. Transmission Policy and Planning (3).**

This course provides a practical approach to fundamentals of power system transmission policy and planning with real-world examples. This course covers the regulatory requirements relevant to North America, fundamentals of transmission planning, planning with renewable resources, economic and environmental considerations, and large-scale regional transmission planning. Prerequisite(s): instructor's approval.

**EE 877S. Detection and Estimation (3).**

Deals with extracting information from observed signals. Observations are typically distorted or corrupted due to various reasons. Therefore,

detection and estimation problems are formulated in a probabilistic framework, where unknown behavior is assumed to be random. The objective is to extract information about some phenomenon related to a given random observation. Detection problems aim at deciding among a finite number of possibilities. Estimation problems aim at finding estimated values of certain quantities that are not observed directly. Detection and estimation theory has a wide range of applications, including networking and communication systems, power systems and control systems. Prerequisite(s): EE 754 or departmental consent.

**EE 877X. EECS Graduate Seminar (1).**

Provides an opportunity to learn about contemporary research and technologies in electrical engineering, computer engineering and computer science. Students are expected to strengthen their topics of current interest and explore beyond their own research area through oral and written presentations.

**EE 877Y. Nonlinear Systems (3).**

Focuses more on methods to analyze nonlinear systems, as opposed to control of nonlinear systems. Topics include: (1) introduction to nonlinear systems, (2) one-dimensional nonlinear system: bifurcations (saddle-node, transcritical and pitchfork bifurcations), (3) two-dimensional nonlinear systems: phase portraits, limit cycles, bifurcations (saddle-node, transcritical, pitchfork and Hopf bifurcations), (4) weakly nonlinear oscillators (Van der Pol equation and Duffing equation), method of averaging, (5) Lyapunov analysis, and (6) describing function methods. Prerequisite(s): EE 792.

**EE 877Z. Nano Communications (3).**

Nano communication is the exchange of information at the nanoscale and it is at the basis of any wired/wireless interconnection of nano machines, enabling a plethora of applications in the biomedical, environmental, industrial and military fields. Presents different approaches to realize this type of communication through electromagnetic, ultrasonic and magnetic-induction communications. Each of these alternatives is described by following a bottom-up approach, i.e., first, an overview of its specific enabling device technology is presented and, second, the state of the art in terms of communication channel modeling, physical layer techniques (e.g., modulation, coding, transmission) and link layer solutions (e.g., medium access control, error control) is described. In addition to the theoretical knowledge that is assessed in exams, students are assigned independent group projects focused in the different core areas of the field. Through the projects, students have the chance to learn and practice COMSOL Multi-physics, MATLAB and LabVIEW. At end of the semester, students write a technical report and orally present their work in class. Course provides students with the necessary knowledge to work in a cutting-edge research field, at the intersection of nanotechnologies and information and communication technologies.

**EE 878. Master's Directed Project (1-4).**

Project conducted under the supervision of an academic advisor for the directed project option. Requires a written report and an oral presentation on the project. Prerequisite(s): academic advisor's consent.

**EE 885. Robust Control Systems (3).**

When applying control theory to real systems, engineers are faced with uncertainties in plant models, plant disturbances and sensor noise. Robust control theory is an optimal approach for applying feedback control theory to systems with these uncertainties. Students completing this course should be capable of analyzing a linear control system in terms of performance and robustness, designing controllers and estimators using H-infinity optimization, and reducing plant model and/or controller implementation orders. Prerequisite(s): EE 792; EE 684 or ME 659.

**EE 886. Error Control Coding (3).**

Introduces error control codes, including Galois fields, linear block codes, cyclic codes, Hadamard codes, Golay codes, BCH codes, Reed-Solomon codes, convolutional codes, Viterbi decoding algorithm, Turbo codes, and ARQ protocols. Applies to digital 3G and 4G cellular and satellite communication systems. Prerequisite(s): EE 726.

**EE 893. Optimal Control (3).**

Reviews mathematics relevant to optimization, including calculus of variations, dynamic programming, and other norm-based techniques. Formulates various performance measures to define optimality and robustness of control systems. Studies design methods for various classes of systems, including continuous-time, discrete-time, linear, nonlinear, deterministic and stochastic systems. Prerequisite(s): EE 792.

**EE 897. Operation and Control of Power Systems (3).**

Acquaints electric power engineering students with power generation systems, their operation in economic mode, and their control. Introduces mathematical optimization methods and applies them to practical operating problems. Introduces methods used in modern control systems for power generation systems. Prerequisite(s): EE 598.

**EE 898. Electric Power Quality (3).**

Measurement, analysis, modeling, simulation and mitigation of electric power quality on medium- and low-voltage distribution systems. Prerequisite(s): EE 697.

**EE 976. PhD Dissertation (1-16).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for credit. Prerequisite(s): admission to doctoral aspirant status.

**EE 981. Cooperative Education (1).**

Work-related placement with a supervised professional experience to complement and enhance the academic program. Intended for master's-level or doctoral students in electrical engineering. Repeatable for credit up to 8 credit hours. May not be used to satisfy degree requirements. Prerequisite(s): departmental consent and a graduate GPA of at least 3.000.

**EE 986. Wireless Spread-Spectrum Communication (3).**

Explains what spread-spectrum communication is and why direct-sequence code-division multiple access (DS-SS) spread-spectrum is used for wireless communication. Studies the block diagrams of the IS-95 forward and reverse wireless communication links under multi-path mobile fading environment using analysis techniques and simulation. Analyzes pseudo-noise (PN) signal generation, the band-limited waveform shaping filter, convolutional coding, interleaver, Walsh code orthogonal modulation, Rake finger receivers, no coherent Walsh orthogonal suboptimal demodulation, other simultaneously supportable subscribers, and third generation CDMA. Prerequisite(s): EE 726.

## **EEPS - Earth, Environmental and Physical Sciences**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**EEPS 700. Technical Sessions (1).**

Through seminar presentations by students, faculty and guest lectures, students critically analyze essential elements and skills of effective oral presentation of scientific research methodology, data and results to audiences of diverse backgrounds; learn techniques of effective use of visual display media, presentation styles and speaker-audience interactions. Must be taken for two semesters for maximum of 2

credit hours toward the degree. Prerequisite(s): graduate standing or instructor's consent.

**EEPS 701. Computer Methods in Science (3).**

1 Classroom hour; 4 Lab hours. Cross-listed as GEOL 690AJ. Surveys computer applications commonly used by scientists, emphasizing nonstatistical applications. Includes computer-assisted instruction, data management, presentation packages, internet resources, digital image analysis, graphics and spreadsheets, reference acquisition and management, desktop publishing, and specialized applications for modeling, simulations, mapping and time-series analysis. Lectures and demonstrations involve individual hands-on activities and student projects. Prerequisite(s): graduate standing or instructor's consent.

**EEPS 702. Research Methods (1).**

Essential elements and principles in scientific research, such as project design, funding, literature research, publication practices and issues of conflict of interest and commitment. Also addresses research misconduct and ethical issues in data acquisition, management, sharing and ownership. May include speakers from the library and research offices. Prerequisite(s): graduate standing or instructor's consent.

**EEPS 710. Great Discoveries and Controversies in Science (3).**

Foundation, history and insights that led to great discoveries in various scientific fields, and which caused great and continuing controversies in scientific theory, the advancement of science, and lessons and perspectives to be learned for future scientific research. Course involves lectures, seminars, literature research, essay writing and presentation by students. *Course includes diversity content.* Prerequisite(s): graduate standing or instructor's consent.

**EEPS 720. Scientific Writing (1).**

Procedure, organization, format and style of a variety of technical and scientific publication vehicles, such as abstracts, professional journal articles, government and industrial reports and paper and book reviews. Essential elements and skills of effective scientific written communication. Must be taken in conjunction with any course (except EEPS 889 and 890) that requires extensive writing. Repeatable for a total of 2 credit hours toward the degree. Prerequisite(s): EEPS 700.

**EEPS 721. Current Issues in Global Environmental Science (3).**

Introduces and uses basic concepts relating to ecosystems, habitats, environments and resources as a basis for understanding environmental problems at different spatial and temporal scales. An interdisciplinary approach frames these problems to facilitate understanding of inter-relationships required for environmental analysis, remediation and management. *Course includes diversity content.* Prerequisite(s): EEPS 710 or instructor's consent.

**EEPS 781. Cooperative Education (1-6).**

Provides practical field experience, under academic supervision, that complements and enhances the student's academic program. Prerequisite(s): departmental consent.

**EEPS 845. Space Science Foundations (3).**

Cross-listed as PHYS 845. Presents an understanding of the extreme special conditions encountered in space. Introduces the heliopause formed by the protective bubble of the sun, which starts as a solar wind, and how spacecrafts or planets survive this special space environment. Studies ideas on propulsion, launch trajectories and orbital principles. Introduces spacecraft systems, communications, navigation and design principles necessary to successfully transverse space. Presents astrobiology and the special space environment that creates especially difficult hardships to which life in space must adapt in order to survive. Introduces space ethics and laws set forth by international treaties. Prerequisite(s): PHYS 795 or GEOL 795.

**EEPS 889. Internship (1-6).**

Students may gain interdisciplinary skills by participating in applied and/or basic research internship projects with local business, industry or government agencies. Enrollment in internship projects requires an approved proposal. Completion of an internship for graduation requires a formal oral presentation of the internship activity and a written report. For students choosing the internship option. Repeatable for a total of 6 credit hours toward the degree. Enrollment is limited to 3 credit hours before a student's internship proposal is approved. Prerequisite(s): consent of internship supervisor.

**EEPS 890. Thesis (1-6).**

For students choosing the thesis option. Repeatable for a total of 6 credit hours toward the degree. Enrollment is limited to 3 credit hours before a student's thesis proposal is approved. Prerequisite(s): EEPS 720 and consent of thesis supervisor.

## EL - Educational Leadership

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**EL 750. Experienced Administrator's Workshop (1-6).**

Offers a variety of administrative topics.

**EL 750G. Serving on an Accreditation Team (1-3).**

Workshop open to any educator serving as member of an AdvancED External Review Team. Credit is earned by participating during the entire review and submitting the required reports.

**EL 750V. School Improvement Plan 1 (2).**

Workshop open to any educator serving as an AdvancED external visiting team chairperson or a member of the internal steering committee. Credit is earned by: (1) completing a school profile or peer review report, and (2) attendance at an AdvancED Kansas profiling workshop or the fall conference.

**EL 750W. School Improvement Plan 2 (2).**

Workshop open to any educator serving as an AdvancED external visiting team chairperson or a member of the internal steering committee. Credit is earned by: (1) completing a school improvement plan or a peer review report, and (2) participating in an AdvancED Kansas school improvement plan workshop/webinar or fall conference.

**EL 750Y. School Improvement Implementation I (1-2).**

Open to any educator serving as an AdvancED external visiting team chairperson or a member of the internal steering committee. Credit is earned by: (1) documented school implementation of the school improvement plan or a peer review report, and (2) participating in an AdvancED Kansas data workshop/webinar or fall conference.

**EL 750Z. School Improvement Implementation II (2).**

Open to any educator serving as a member of the internal steering committee. Credit is earned by: (1) completing the accreditation report, and (2) participating in the AdvancED Kansas external review workshop/webinar or fall conference.

**EL 803. Introduction to Educational Leadership, Team-Based Collaboration, and Inquiry Process (3).**

Participants engage in self-assessment and readiness for becoming a school administrator. Includes discussing and learning issues and techniques for measurement in the cognitive, affective and psychomotor domains. Also reviews the basics of educational research, the nature of research methodologies, and methods for the preparation of research reports. Prerequisite(s): admission to the MED in educational leadership or instructor's consent.

**EL 813. Introduction to Educational Leadership and School Finance (3).**

Explores theoretical concepts of leadership and systems thinking in schools. Guided inquiry expands knowledge and application of leadership and interpersonal skills in the context of budgeting processes, technology, crisis and safety planning, personnel evaluation processes and other building-level educational responsibilities. Reviews knowledge necessary to plan and organize teams, projects, and identify the resources necessary to carry out day-to-day functional activities of school. Conducts guided inquiries in school settings. Prerequisite(s): admission to WSU educational leadership master's/licensure program or instructor's consent.

**EL 815. Building-Level Leadership Practicum I (3).**

Spend time in schools identifying how major theories of administration apply to specific activities and responsibilities in the school and how the school interacts with the district and the community. Practice day-to-day activities of an educational leader in a systems-thinking, building-level setting. Focus on building collaboration skills and development of interpersonal skills. Prerequisite(s): admission to the educational leadership building-level leadership master's program or instructor's consent.

**EL 816. Educational Leadership Building-Level Licensure Practicum I (3).**

Spend time in schools identifying how major theories of administration apply to specific activities and responsibilities in the school and how the school interacts with the district and the community. Practice day-to-day activities of an educational leader in a systems-thinking, building-level setting. Apply the concepts of curriculum theories and major learning theories and principles as they relate to academic and behavioral aspects of the classroom. Focus on building collaboration skills and development of interpersonal skills. Prerequisite(s): admission to the educational leadership building-level leadership licensure program or instructor's consent.

**EL 823. Changing the Culture in an Environment of Collaboration and Partnership (3).**

Examines theoretical concepts of school culture, climate and continuous improvement, and the importance of developing professional relationships among stakeholder groups. Includes developing interpersonal skills that lead to success in collaborating and supervising staff and developing community relations to enhance support of schools. Explores change theory and its application in continuous school improvement that transforms the educational process and culture of a school. Engages in exercises to acquire interpersonal skills desirable for group collaboration and communication and leading change process. Conducts action research in school settings. Prerequisite(s): admission to the education leadership building level leadership master's/licensure program or instructor's consent.

**EL 825. Building-Level Leadership Practicum II (3).**

Spend time in schools identifying how major theories of administration apply to specific problems in the school and how the school interacts with the district and the community. Practice day-to-day activities of an educational leader in a systems-thinking, building-level setting. Focus on applying concepts related to selection, recruitment, certification, orientation, staff development, evaluation, transfer, dismissal and retirement. Apply general legal concepts and statutes to various situations and personal/professional liability. Practicum experiences encompass more advanced leadership activities than EL 815. Second semester practicum includes broad and in-depth leadership activities. Prerequisite(s): admission to the educational leadership building-level leadership master's program or instructor's consent.

**EL 831. Diversity and Social Justice (3).**

Examines the role of school leadership in an increasingly complex and diverse society. Students investigate diversity in its various forms including race, ethnicity, language, gender, socioeconomic status, disability and religious beliefs. Students analyze inequities within societal, institutional and personal frameworks, and engage in problem solving toward socially equitable educational practices and inclusive learning communities. Prerequisite(s): admission to the educational leadership building-level leadership master's/licensure program or instructor's consent.

**EL 833. Seminar: School Law and Personnel Management (1-3).**

Examines concepts related to staffing issues, including selection and recruitment, certification, orientation, staff development, evaluation, transfer and dismissal, and retirement. Covers general concepts of law, interpretations of statutes and court decisions affecting education, and the legal responsibilities of school personnel and professional negotiations. Prerequisite(s): admission to the education leadership building level leadership master's/licensure program or instructor's consent.

**EL 835. Building-Level Leadership Practicum III (3).**

Spend time in schools identifying how major theories of administration apply to specific problems in the school and how the school interacts with the district and the community. Practice the day-to-day activities of an educational leader in a systems-thinking, building-level setting. Apply the concepts of curriculum theories and major learning theories and principles as they relate to academic and behavioral aspects of the classroom. Prerequisite(s): admission to educational leadership building-level leadership master's program or instructor's consent.

**EL 843. Seminar: Curriculum and Learning Theory (1-3).**

Examines theoretical concepts related to curriculum philosophies and developmental processes. Examines recent programs and proposals as well as curriculum development at the building and school system levels. Reviews techniques of program evaluation and major learning theories and principles. Conducts action research in the school setting. Prerequisite(s): admission to educational leadership building-level leadership master's/licensure program or instructor's consent.

**EL 845. Building-Level Leadership Practicum IV (3).**

Spend time in schools identifying how major theories of administration apply to specific problems in the school and how the school interacts with the district and the community. Practice the day-to-day activities of an educational leader in a systems-thinking, building-level setting. Guided practicum experiences encompass advanced leadership activities. Focus on change process, conflict resolution, staff supervision and building community partnerships. Fourth semester practicum culminates in proficiency of building-level leadership experiences. Prerequisite(s): admission to educational leadership building-level leadership master's program or instructor's consent.

**EL 846. Educational Leadership Building-Level Licensure Practicum II (3).**

Spend time in schools identifying how major theories of administration apply to specific problems in the school and how the school interacts with the district and the community. Practice day-to-day activities of an educational leader in a systems-thinking, building-level setting. Focus on application of concepts related to selection, recruitment, certification, orientation, staff development, evaluation, transfer, dismissal and retirement. Apply general legal concepts and statutes to various situations and personal/professional liability. Focus on change process, conflict resolution, staff supervision and building community partnerships. Second semester practicum includes broad and in-depth leadership activities. Prerequisite(s): admission to the educational leadership building-level leadership licensure program.

**EL 852. Special Studies in Educational Administration and Supervision (3).**

Group studies in new materials, new research or innovations in advanced educational administration and supervision areas for practicing administrators or advanced students. Repeatable for credit with departmental consent. Prerequisite(s): departmental consent.

**EL 853. Building Level Leadership for Special Populations (3).**

Explores and develops leadership skills critical in recognizing and supporting the instructional and programmatic needs of teachers and staff working with students in school programs including English Language Learners, 504, Special Education, Title Programs, MTSS, trauma intervention and other programs. Guided inquiries provide opportunities for applied learning in the school setting. Prerequisite(s): admission to educational leadership building-level master's/licensure program or instructor's consent.

**EL 884. Leadership in Vision, Collaboration and Planning (3).**

Candidates study multiple visioning and collaboration efforts for developing long-range, strategic planning in preparing for the future of preK through graduation learning environments. Evaluating existing educational facilities is an important element and includes an overview of operations for such facilities. Prerequisite(s): master's degree or instructor's consent.

**EL 953. Financial Support of Education (3).**

Focuses on the financial support of education at local, state and national levels. Emphasizes methods of taxation, budget preparation and efficient expenditures.

**EL 956. Human Services Leadership (3).**

Designed for those students preparing to become district-level school administrators in general, and school superintendents in particular. Focuses on the selection, retention, development and evaluation of the panoply of personnel that comprise a typical school district. Particular emphasis is placed on hiring practices, staff development, conflict resolution and contract management. Prerequisite(s): admission into the district-level certification program.

**EL 963. Policy and Politics in Educational Leadership (3).**

Investigates the relationship between society and school as it relates to the political process. Students examine the interaction and influence of federal, state and local policies and politics on educational decision making and how the implementation of laws and policies occurs at the district level. Students examine the pressures applied by diverse stakeholder and interest groups that have differential control as they relate to the various statuses afforded different groups in U.S. society.

**EL 964. Administration and Supervision of Special Education (3).**

Provides district-level administrators with an understanding of federal and state laws that apply to students with exceptionalities, and information related to the legal, instructional and administrative aspects of special education. Covers the mobilization of community resources to support quality education for all children. Addresses practical ethical dimensions of district-level leadership by providing a framework for reflection and deliberation. Explores the various ecological contexts of the family, school and community. Prerequisite(s): admission to district-level program.

**EL 968. Technology Orientation (1).**

Provides new doctoral candidates with an orientation on the application of a variety of modern communication technologies and software packages to successful completion of the doctoral program in educational leadership. Prerequisite(s): admission to the EdD program.

**EL 969. Introduction to Educational Research and Academic Writing (3).**

Introduces students to ethical standards of educational research, the various research traditions and methodologies employed in the conduct of educational research. Students learn to conduct a literature review using both library and online search tools, to discriminate among the types of published works available, to critically read research and related literature, to develop an understanding of academic writing conventions and expectations, and develop facility with APA 6 style. Prerequisite(s): admission to the EdD program in EL.

**EL 970. Theoretical Research Perspectives and Applications for Educational Leadership (3).**

Examines the relationship between theory and practice in educational leadership. Participants consider various theoretical frameworks for empirical studies, program designs and organizational implementation efforts, and take initial steps toward integrating those frameworks. Prerequisite(s): admission to the EdD program in EL.

**EL 971. Contemporary Policy and Organizational Theories in Education (3).**

Focuses on contemporary theories of policy and organization, and their application to P-16 educational organizations. Major theories studied include organizational culture, organizational learning, and organizational sensemaking. Critical, feminist and postmodern policy and organizational theoretical perspectives are also examined. Prerequisite(s): admission to the EdD program, EL 970, 981. Corequisite(s): EL 982.

**EL 972. Leadership Theories Seminar (3).**

Facilitates in-depth investigations of leadership theories and their application to research and practice. Prerequisite(s): admission to the EdD program, EL 970, 971. Corequisite(s): EL 986.

**EL 981. Introduction to Field-Based Research (5).**

Provides doctoral students with an introduction to field-based inquiry/problem-solving strategies; begins the development of field-based problems/issues, and provides practice in field research design, implementation and reporting. Prerequisite(s): admission to the EdD program in EL.

**EL 982. Introduction to Field-Based Research II (5).**

Continues EL 981 and provides opportunities for more sophisticated and complex field-based studies. Prerequisite(s): admission to the EdD program in EL.

**EL 983. Research Proposal Development (3).**

Focuses on developing the individual dissertation research proposal, particularly conceptualizing the research problem and research questions, expanding the literature review, and identifying potential research designs. Prerequisite(s): admission to the EdD program or instructor's consent, EL 981, 982.

**EL 984. Theoretical Frameworks for Organizational Analysis (3).**

Introduces doctoral students to the theoretical frameworks and constructs that have an effect on educational organizations. Students study appreciative inquiry, action research and social capital. Students learn to apply these frameworks and constructs to forthcoming field studies as well as consideration as a lens for viewing the dissertation. Prerequisite(s): EL 970, 971, 981, 982. Corequisite(s): EL 983.

**EL 986. Advanced Field-Based Research I (5).**

Provides advanced doctoral students with opportunities to increase their knowledge and experience with field-based research. Prerequisite(s): admission to the EdD program, EL 981, 982, 983. Corequisite(s): EL 972.

**EL 987. Advanced Field-Based Research II (3-5).**

Provides advanced doctoral students with opportunities to increase their knowledge and experience with field-based research. Prerequisite(s): admission to EdD program, EL 983, 986.

**EL 989. Research Design (3).**

Students develop research design techniques appropriate for use in educational leadership doctoral dissertation proposals. Prerequisite(s): EL 981, 982, 983, 986.

**EL 990. Special Problems in Administration (1-4).**

Directed problems in research for specialist and doctoral degree students under supervision of a graduate instructor. Prerequisite(s): instructor's consent.

**EL 992. Superintendency/Internship (3-6).**

Two-semester course designed for candidates/interns who are completing program coursework to obtain licensure as district-level school leaders. A research-based analysis for a long-term change project is designed by each student based on their projected leadership interest. Requirements focus on role expectations of district-level leaders and include field experiences designed to emphasize knowledge and performance skills and functions of the respective standards in leadership practices and procedures. Capstone course for the program. Prerequisite(s): instructor's consent.

**EL 999. Dissertation Research (2-6).**

Provides students with dissertation proposal and dissertation advisement and may be taken for 2–6 credit hours per semester for a maximum of 50 credit hours. Up to 15 credit hours may be counted toward program completion. Prerequisite(s): admission to EdD program in educational leadership, required coursework, and successful completion of comprehensive examination.

**EMBA - Executive MBA**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**EMBA 800. Business Analytics (2).**

Focuses on critical evaluation of the nature of business problems and opportunities in ways that allow data-driven decision making. This includes problem discovery and framing, data exploration using descriptive techniques, and inferential analysis using parametric (e.g., t-tests, correlation, regression) and nonparametric techniques. It also emphasizes appropriate communication of data. Prerequisite(s): admission to EMBA program.

**EMBA 801. Organizational Behavior (2).**

Examines leadership styles, power, authority, motivations, communications and their impact on human behavior. Includes organizational learning, team building, participative management, transformational leadership, managing diversity, conflict management, network organizations, organizational change and re-engineering. Prerequisite(s): admission to EMBA program.

**EMBA 802. Strategic Marketing (2).**

Focuses on strategic marketing analysis, planning, integration and implementation. Designed to prepare middle, senior and executive-level leaders to make effective marketing decisions and is taught using the case-study method. Introduces key principles and processes for developing effective integrated marketing programs aligned with organizational strategy. Prerequisite(s): admission to EMBA program.

**EMBA 803. Business Economics (2).**

Focuses on the elements of economics that are most useful for middle- and upper-level managers. Covers the basic concept of a market (demand and supply), the internal operations of the firm (production,

cost structures, internal organization and pricing policies), and the micro environment of the firm (competitive market structures and government regulation). Prerequisite(s): admission to EMBA program.

**EMBA 804. Operations and Supply Chain Management (2).**

Provides a fundamental understanding of manufacturing and service operations and their role in the organization, along with other functions like sales, finance, etc. Overviews a range of topics including operations strategy, capacity planning, quality management, lean, inventory management, and forecasting. Emphasizes the conceptual frameworks and modeling tools used to implement improvements in business processes. Also highlights the use of analytics in operations and supply chain management. Prerequisite(s): admission to EMBA program.

**EMBA 805. Global Business and Competitiveness (3).**

Focuses on applications of economic analysis to international business decisions, international and macroeconomic components, understanding the implications of macro policies and developments for the firm's business environment, expansions into foreign markets, foreign investment and the relevance of global changes in technology and labor productivity, and foreign exchange, balance of payments and trade policy issues. Prerequisite(s): admission to EMBA program.

**EMBA 806. Financial Reporting and Analysis (2).**

Studies the fundamental concepts of financial accounting and reporting by business entities in accordance with generally accepted accounting principles. Approaches the material from the perspective of the financial statement user rather than the financial statement preparer. Therefore, emphasis is placed on the use and interpretation of information contained in business financial statements by managers, investors and creditors. Prerequisite(s): admission to EMBA program.

**EMBA 807. Corporate Finance (2).**

Covers the foundations of finance with an emphasis on applications that are vital for corporate managers. Overview of basic financial analysis. Considers the major financial decisions made by corporate managers. Essential in most of these decisions is the process of valuation, which is an important course emphasis. Topics include criteria for making investment decisions, valuation of financial assets, relationships between risk and return, risk management and capital structure choice. Course goals are to examine the role of finance in supporting the functional areas of a firm and to foster an understanding of how financial decisions themselves can create value. Prerequisite(s): admission to EMBA program.

**EMBA 808. Accounting for Planning and Control (2).**

Introduces students to modern tools and techniques designed to generate performance measures used for decision making, management and control purposes. Accounting information is used for a variety of managerial decisions such as product pricing and profitability analysis. Illustrates how performance measures are integrated into management control systems so as to align the objectives of (division) managers with those of the shareholders. Key building blocks of such systems are cost allocations, transfer pricing and compensation schemes. Illustrates the strengths and weaknesses of commonly-used performance metrics such as the balanced scorecard. Prerequisite(s): admission to EMBA program.

**EMBA 809. Digital Transformation (1.5).**

Explores how to successfully incorporate information technology into organizations to support business model innovation, business process innovation, and management decision making. Course goals are to equip managers with the understanding of how information technology can be used for value creation and sustainable competitive advantage. Prerequisite(s): admission to EMBA program.

**EMBA 811. Competitive Strategy (2).**

Integrates the other courses in the program by addressing the strategic management of an organization. Focuses on the factors surrounding achieving and sustaining competitive advantage in the business unit and extending competitive advantage across business units. Strategy is discussed in terms of how to create maximum value for customers and to capture as much of that value as possible for growing and sustaining the organization. Prerequisite(s): admission to EMBA program.

**EMBA 812. Business Law and Ethics (1.5).**

Stimulates critical thinking about the application of law and ethics in business. Provides an overview of the legal system and dispute resolution procedures. Covers specific legal topics of particular importance to business leaders including contracts, torts, constitutional law, product liability, intellectual property, employment law, business entities and business regulation. Introduces students to ethical decision-making processes, the major philosophical traditions in ethical theory, as well as principles of corporate governance, corporate responsibility, and sustainability. Focuses on stimulating analytical thinking and class discussion about how to apply ethical principles to practical business situations. Prerequisite(s): admission to EMBA program.

**EMBA 890. Executive Seminar in Special Topics (0.75-3).**

Repeatable for credit. Prerequisite(s): admission to EMBA program.

**EMBA 890C. Negotiations (1).**

Covers topics related to negotiations.

**EMBA 890K. Innovation Management (1).**

This special topics course addresses innovation management in organizations.

**EMBA 890M. New Product Development (1).**

This special topics course addresses entrepreneurship. It begins by providing a broad strategic overview of entrepreneurship and then specifically addresses the nuts and bolts of new product development and technology entrepreneurship.

**EMBA 890N. Human Resource Management (1).**

Explains the value generated by HRM practices, decisions and processes. Elaborates on the influence of the legal, social and labor environment on HRM decisions. Describes the impact of HRM policies and practices on individual and organizational performance.

**EMBA 890P. Program Management (1).**

Provides an overview of topics on program management. Establishes fundamental guidelines for defining the process of program management and designing time-constrained projects. Covers core methodology for managing complex projects on time.

**EMBA 890X. Integrated Planning and Control (1).**

Covers topics related to efficient and effective planning and control techniques across multiple projects. Establishes fundamental guidelines for defining the process of planning and controlling projects. Covers core methodology for outlining project scope and requirements, creating a work break down structure, and managing the schedule and costs.

**EMBA 890Y. Program Risk Management (1).**

Establishes fundamental guidelines for defining management risk in programs. Covers core methodology for assessing risk and implementing risk mitigation strategies across multiple projects.

**EMBA 890Z. Program Performance Management (1).**

Covers topics related to how firms can effectively manage performance in programs. Program performance management is a standard practice in organizations. The concept is presented and promoted through business processes, methodologies, metrics and technologies used by an organization to measure, monitor and manage program performance.

**ENGL - English**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**ENGL 503. American Literature I (3).**

The major fiction, poetry and nonfiction prose of the classic American period. Discussions may include the historical evolution of American letters, the development of the novel and romance, the transcendental period, and the rise of Western and regional literatures. Prerequisite(s): junior standing and one college literature course.

**ENGL 504. American Literature II (3).**

Fiction, poetry and drama from the late 19th century to after World War II. Readings also may include literary criticism and other types of nonfiction prose. Discussions cover themes, topics and literary forms inspired by the social and cultural movements and events of the first half of the 20th century. Prerequisite(s): junior standing and one college literature course.

**ENGL 505. Advanced Creative Nonfiction Writing (3).**

Emphasizes advanced accomplishment in writing imaginative nonfiction. Students study the form and technique of master practitioners of the genre, and articulate and debate the qualities leading to successfully executing an imaginative essay while developing such essays themselves. Both readings and student work explores various subgenres, some of which may include travel essay, the essay of place (immersive essay), nature essay and varieties of narrative nonfiction. Repeatable for credit. Prerequisite(s): for undergraduate students: (1) ENGL 305, with a B- or better, or (2) at least two upper-division creative writing courses, with a B- or better, and creative writing director's consent; for graduate students: creative writing director's consent.

**ENGL 508. Critical Studies in Film (3).**

Subjects announced each semester. Intensive analysis of a particular film genre, period, director or theme, giving special attention to the historical, cultural, theoretical and technical contexts in which the films were made. Repeatable once for credit with a change of content. Prerequisite(s): ENGL 102, one college-level literature or film course.

**ENGL 512. Studies in Fiction (3).**

Subjects announced each semester. Repeatable once for credit. Prerequisite(s): junior standing and one college literature course.

**ENGL 513. Studies in Poetry (3).**

Subjects announced each semester. Repeatable once for credit. Prerequisite(s): junior standing and one college literature course.

**ENGL 514. Studies in Drama (3).**

Subjects announced each semester. Repeatable once for credit. Prerequisite(s): junior standing and one college literature course.

**ENGL 515. Studies in Shakespeare (3).**

Subjects announced each semester. Repeatable for credit, except by students who take ENGL 340. Prerequisite(s): junior standing and one college literature course, or instructor's consent.

**ENGL 516. Studies in a Major Author (3).**

Designed to allow in-depth study of the works of a major American or British author, emphasizing the development of that author's art and considering the work from a variety of critical perspectives.

**ENGL 517. Scriptwriting I (3).**

*General education humanities course*. Cross-listed as THEA 516. Writing scripts for performance. Emphasizes both verbal and visual aspects of scriptwriting. If possible, the scripts are given in-class readings by actors. Prerequisite(s): instructor's consent.

**ENGL 518. Scriptwriting II (3).**

*General education humanities course.* Cross-listed as THEA 517. Writing scripts for performance in theatre, film, television and the Internet. Emphasizes both verbal and visual aspects of scriptwriting. If possible, the scripts are given in-class readings by actors. Prerequisite(s): instructor's consent.

**ENGL 520. Epic and Romance (3).**

Readings in classic and early Western narratives, beginning with Homer's Bronze-Age epic and ending with late medieval romance. Examines the literary conventions and cultural assumptions that typify these works. Pays particular attention to the historical shift in interest from epic to romance as a reflection of broad changes, not only in literary form and content, but also in social customs and worldview. Prerequisite(s): junior standing and one college literature course.

**ENGL 521. Medieval Literature (3).**

Works by writers of the eighth to 15th centuries, often thematically or historically focused. Readings may include lyric poetry, epic, romance, saga and drama. Prerequisite(s): junior standing and one college literature course, or instructor's consent.

**ENGL 522. Renaissance Literature (3).**

Works by writers of the 16th through the mid-17th centuries, often thematically or historically focused. Readings may include poetry, drama, fiction and nonfiction prose. Prerequisite(s): junior standing and one college literature course, or instructor's consent.

**ENGL 524. Restoration and 18th Century Literature (3).**

Works by writers of the late 17th through the 18th centuries, often thematically or historically focused. Readings may include poetry, fiction, drama and nonfictional prose. Prerequisite(s): junior standing and one college literature course, or instructor's consent.

**ENGL 526. Romantic Literature (3).**

Works by writers of the late 18th and/or early 19th centuries, often thematically or historically focused. Readings may include fiction, poetry, drama, and/or literary criticism or other nonfiction prose. Prerequisite(s): junior standing and one college literature course, or instructor's consent.

**ENGL 527. Victorian Literature (3).**

Works by writers of the mid to late 19th century, often thematically or historically focused. Readings may include fiction, poetry, drama, and/or literary criticism or other nonfiction prose. Prerequisite(s): junior standing and one college literature course, or instructor's consent.

**ENGL 532. Modern British Literature (3).**

Irish and English literature of the 20th century. Subjects announced each semester. Repeatable once for credit with change of topic. Prerequisite(s): junior standing and one college literature course.

**ENGL 533. Contemporary Literature (3).**

Modern literature, primarily British and American, since 1950. Subjects announced each semester. Repeatable once for credit. Prerequisite(s): junior standing and one college literature course.

**ENGL 536. Writing by Women (3).**

Cross-listed as WOMS 536 and WOMS 381C. Explores various themes in critical approaches to literature composed by women writers, especially those whose works have been underrepresented in the literary canon. Genres and time periods covered, critical theories explored, and specific authors studied vary in different semesters. *Course includes diversity content.*

**ENGL 540. Introduction to Critical Theory (3).**

Introduces students to critical literary theory. Topics may include readings in gender theory, historicism, psychoanalytical theory, cultural criticism, Marxism, reader-response theory and deconstruction. May also offer a survey of classical and early-modern critical

methodologies from Plato to the formalist schools of the early 20th century. Prerequisite(s): ENGL 102 and/or instructor's consent.

**ENGL 545. Literary Editing and Publishing (3).**

Practical experience and theoretical consideration of literary journal publishing through work on Mikrokosmos and Mojo. Students read essays on the state of literary journal publishing now, on journal composition, editing, proofreading, typography and the business of journal publication, and after evaluating various literary journals, develop criteria for publication in Wichita State's journals. They evaluate submissions for the print and online journals and apply lessons on typography, design, layout, copyediting and proofreading to the production of Mikro and Mojo. Prerequisite(s): for undergraduate students: two upper-division creative writing classes. Pre- or corequisite(s): for graduate students: either (1) have one of ENGL 801, 803, 805 with concurrency or (2) meet the undergraduate prerequisite of two upper-division creative writing classes.

**ENGL 546. Studies in Ethnic Literature (3).**

Studies literature by a specific ethnic group or groups in the United States or Great Britain. Content varies by instructor, and subjects are announced each semester. Fosters an appreciation for the unique literary tradition of a distinct ethnic group or groups and gives students some understanding of the larger historical and national contexts in which that tradition emerged. *Course includes diversity content.* Repeatable once for credit with a change in topic. Prerequisite(s): junior standing and one college-level literature course.

**ENGL 550. Independent Reading (1-3).**

For majors and nonmajors who wish to pursue special reading or research projects in areas not normally covered in coursework. Repeatable once for credit. Prerequisite(s): ENGL 102 and departmental consent.

**ENGL 576. Advanced Studies in the Graphic Novel (3).**

Designed to allow in-depth study of the graphic novel with special emphasis on critical responses. Readings may be thematically or historically focused. Prerequisite(s): junior standing, ENGL 377, and at least one other college literature course or instructor's consent.

**ENGL 579. Introduction to Digital Humanities (3).**

*General education humanities course.* Introduces students to some of the tools and projects that constitute the digital humanities, and considers issues raised by the field. Prerequisite(s): ENGL 101, ENGL 102, one literature course 200-level or above, or instructor's consent.

**ENGL 580. Special Studies (1-3).**

Topic selected and announced by the individual instructor. Repeatable once for credit. Prerequisite(s): junior standing and one college literature course or departmental consent.

**ENGL 580AE. Game of Thrones: In Print, on Screen, and in Popular Culture (3).**

Explores the world created by George R. R. Martin's novel series *A Song of Ice and Fire* and what the popularity of both the novels and the HBO series *A Game of Thrones* might say about our world. In addition to exploring *Song/GoT* themselves, throughout the semester students look at multiple media sources to scrutinize the myriad and complex ways they have been received. Students need not have read Martin's novels, but they need to have access to them in order to look at various passages together. Students should view the series before the semester starts and make sure they can review scenes/episodes (including the final season) during the semester. Assignments for the course include presentations and research essays. Winter is coming to WSU!

**ENGL 580AF. Languages and Language Attitudes in the U.S. (3).** Cross-listed as LING 590M. Community-based research seminar examines the social, economic and educational ramifications of various languages and attitudes to these languages in the U.S. Topics include the linguistic intersection of race, gender and social class; comparisons of standardized and Standard English to other dialects such as African American Vernacular English (AAVE); and the role of linguistics in the formation of language policy. Course takes a hands-on approach and students are involved in research design and data analysis. Students also have opportunities to participate in service learning, in organizations such as International Rescue Committee and AmeriCorps.

**ENGL 580AG. Young Adult Literature (3).**

Introduces various genres of young adult literature. Overviews current scholarly and/or pedagogical approaches commonly found in the study of young adult literature. Prerequisite(s): junior standing and one college literature course, or departmental consent.

**ENGL 581. Composition Practicum (1).**

Required for all teaching assistants in English. Does not count for credit toward the MA or MFA degree. Focuses on techniques and strategies for teaching composition. Each participant enrolls in the syllabus group appropriate to the composition course he or she teaches. Repeatable for credit. Prerequisite(s): appointment as a graduate teaching assistant in the department of English.

**ENGL 585. Writer's Tutorial: Prose Fiction (3).**

Tutorial work in creative writing in literary fiction with visiting writer. Repeatable for credit. Prerequisite(s): consent of creative writing director.

**ENGL 586. Writer's Tutorial: Poetry (3).**

Tutorial work in creative writing in literary poetry with visiting writer. Repeatable for credit. Prerequisite(s): consent of creative writing director.

**ENGL 590. Senior Seminar (3).**

In-depth study of a specialized literary topic. Emphasizes focused readings, interactive debate, individual research and the presentation of research reports and essays. Topics vary according to the specialization of the instructor. Required capstone course for the English major and should be taken during a student's final year of study. Not available for graduate credit. Prerequisite(s): completion of 18 credit hours toward the major.

**ENGL 663. Languages and Language Attitudes in USA (3).**

Cross-listed as LING 663. In this community-based research seminar, students examine the social, economic and educational ramifications of various languages and attitudes to these languages in the USA. Covers the linguistic intersection of race, gender and social class; compares standardized and Standard English to other dialects such as African American Vernacular English; and the role of linguistics in forming language policy. Takes a hands-on approach and involves students in research design and data analysis. *Course includes diversity content.*

**ENGL 664. Quantitative Methods for Literary and Linguistic Studies (3).**

Cross-listed as LING 664. Introduces the basic concepts of data analysis and statistical computing as used in literary and linguistic studies. Students get a better understanding of applying quantitative reasoning, visualization and data analysis to several problems in a wide range of fields in the humanities, such as linguistics, literature, and by extension, psychology and cognitive science. Students also consider practical applications of quantitative analysis in the humanities, including bibliometric and attribution study. *Course includes diversity content.*

**ENGL 665. History of the English Language (3).**

In-depth historical study of the English language tracing the history of how the language has changed across time. Considers Old, Middle, Modern and American English as well as newer World Englishes. Addresses the nature and mechanisms of language change over time and the social, political and other historical conditions related to such changes. Focuses on the particular phonological, morphological, syntactic, lexical and semantic changes that have happened diachronically, while touching on the literature and culture of the different historical periods. Prerequisite(s): ENGL 315/LING 315.

**ENGL 667. English Syntax (3).**

Cross-listed as LING 667. Studies the basic principles of English syntax, covering the major facts of English sentence construction and relating them to linguistic theory. Prerequisite(s): ENGL 315/LING 315 or equivalent, or departmental consent.

**ENGL 668. Field Methods of Linguistics (3).**

Cross-listed as LING 668. Students learn how to collect and analyze data from a language unknown to them by interacting with a native speaker – course language consultant. Students gain some familiarity with the phonetics, phonology, morphology and syntax of the language, while developing techniques for studying an unfamiliar language more generally and for managing the data collected. *Course includes diversity content.* Repeatable three times for a total of 9 credit hours. Prerequisite(s): ENGL 315/LING 315.

**ENGL 680. Theory and Practice in Composition (3).**

Introduces theories of rhetoric, research in composition and writing programs, and practices in schools and colleges. Students investigate the process of writing, analyze varieties and samples of school writing, and develop their own writing skills by writing, revising and evaluating their own and others' work. Designed especially for prospective and practicing teachers.

**ENGL 681. Editing American English (3).**

Students master the rules and conventions of grammar, sentence structure, spelling, punctuation, usage and mechanics, and learn how to apply them while they are revising and editing a written text. Students work as tutors in the writing center to learn and understand the practical application of editing rules. Includes instruction in the conventions of Editing Standard English (also known as Edited American English) and in methods of effective tutoring. Prerequisite(s): ENGL 101, 102.

**ENGL 686. Professional, Technical and Scientific Writing and Editing (3).**

Introduces students to editing and writing in professional, scientific, technical and medical fields. Through careful reading and analysis of exemplary technical and scientific documents, students gain exposure to numerous writing genres produced for different audiences and contexts. They practice writing in several forms, which may include research summaries, press releases, procedures, specifications, infographics, public service announcements, fact sheets and popular science writing. Assignments help strengthen students' rhetorical awareness, as well as the precision, clarity and readability of their writing.

**ENGL 700. Introduction to Graduate Study in English (3).**

Prepares students to perform effectively in graduate classes in English. Covers: (1) basic bibliographical tools; (2) terminology both technical and historical; (3) various approaches to the study of literature, such as intrinsic analysis of a literary work, the relationships of biography to literary study, and the relevance of other disciplines, such as psychology, to literature; and (4) the writing of interpretative and research essays. Maintains a balance between criticism and research throughout the semester. Fulfills the university's professional and scholarly integrity training requirement covering research misconduct, publication practices and responsible authorship, conflict of interest and

commitment, ethical issues in data acquisition, management, sharing and ownership for students who receive a grade of B or better.

**ENGL 703. Seminar in American Literature I (3).**

Advanced study of major issues and themes in fiction, poetry and nonfiction prose from the early American period to the Civil War, with attention to the social and cultural contexts that shaped the literary history of the colonial period and the early nation. Repeatable once for credit with a change of content and departmental consent. Prerequisite(s): completion of or concurrent enrollment in ENGL 700, or permission of English graduate coordinator.

**ENGL 704. Seminar in American Literature II (3).**

Advanced study of major issues and themes in fiction, poetry and nonfiction prose from the post-bellum period to 1920, with attention to the social and cultural contexts that shaped such trends as realism and modernism. Repeatable once for credit with a change of content and departmental consent. Prerequisite(s): completion of or concurrent enrollment in ENGL 700, or permission of English graduate coordinator.

**ENGL 705. Seminar in American Literature III (3).**

From 1920 to 1970. Advanced study of major issues and themes in fiction, poetry and nonfiction prose from 1920 to the contemporary period, with attention to the social and cultural contexts that shaped such trends as modernism and postmodernism. Repeatable once for credit with a change of content and departmental consent. Prerequisite(s): completion of or concurrent enrollment in ENGL 700, or English graduate coordinator's consent.

**ENGL 712. Graduate Studies in Fiction (3).**

Selected topics in the development of the form and content of prose fiction. Prerequisite(s): completion of or concurrent enrollment in ENGL 700, or English graduate coordinator's consent.

**ENGL 713. Graduate Studies in Poetry (3).**

Selected topics in forms, techniques and history of poetry. Prerequisite(s): completion of or concurrent enrollment in ENGL 700, or English graduate coordinator's consent.

**ENGL 714. Graduate Studies in Drama (3).**

Selected topics in the history and nature of dramatic literature. Prerequisite(s): completion of or concurrent enrollment in ENGL 700, or English graduate coordinator's consent.

**ENGL 715. Seminar in Chaucer (3).**

Advanced study of Chaucer's major works. Readings are in Middle English and include selections from the *Canterbury Tales*, *Troilus and Criseyde*, the dream visions, the lyrics, and a limited number of comparative readings in other late 14th century authors such as Langland, the *Gawain-Poet* and Gower. Emphasizes close reading and interpretation of the text, and the historical context of Chaucer's work, which involves studying subjects such as the black plague, the peasants' revolt, guilds, fairs, chivalry, trade and healing. Repeatable once for credit with a change of content and departmental consent. Prerequisite(s): completion of or concurrent enrollment in ENGL 700, or English graduate coordinator's consent.

**ENGL 721. Seminar in Medieval Literature (3).**

Advanced study of selected works from Old and Middle English literature and continental literature of the medieval period, with an emphasis on close reading as well as the social and cultural context of the readings. Content varies at the discretion of the instructor. Readings may include epic, romance, drama, lyric and satire, as well as examples of discourse — oratory, history, memoir, political writings, philosophy — and major works and authors such as *Beowulf*, *Cynewulf*, *Wulfstan*, *Chretien de Troyes*, *Marie de France*, *Chaucer*, the *Gawain-Poet* and *Malory*. Repeatable once for credit with a change of content and

departmental consent. Prerequisite(s): completion of or concurrent enrollment in ENGL 700, or English graduate coordinator's consent.

**ENGL 722. Seminar in Renaissance Literature (3).**

Advanced study of works by important writers of the 16th and earlier 17th centuries. Content varies at the discretion of the instructor. Offerings may be thematically or historically focused, and may include poetry, drama, fiction or nonfiction prose. Repeatable once for credit with a change of content and departmental consent. Prerequisite(s): completion of or concurrent enrollment in ENGL 700, or English graduate coordinator's consent.

**ENGL 724. Seminar in Restoration and 18th Century British Literature (3).**

Advanced study of major selected works and authors of the period between 1660 and 1789, covering the crucial genres of drama, poetry, the essay and the novel. Content varies at the discretion of the instructor. Study may include satire, political discourse, comedy, tragedy, parody, and/or innovative forms such as the novel and fictionalized biography. Canonical figures such as Congreve, Dryden, Pope, Swift, Fielding and Johnson may figure prominently. Historical contexts are emphasized. Repeatable once for credit with a change of content and departmental consent. Prerequisite(s): completion of or concurrent enrollment in ENGL 700, or English graduate coordinator's consent.

**ENGL 726. Seminar in Romantic Literature (3).**

Advanced study of the authors, genres, themes and/or movements in late 18th and early 19th century literature, with content varying at the discretion of the instructor. Possible topics might include Romantic-era women writers, the historical contexts of the French Revolution and British imperialism, the rise of the novel, the canonical Romantic poets (Blake, Wordsworth, Coleridge, Shelley, Byron and Keats), the development of mass print culture, and/or representations of sublime landscapes, solitary meditation and European travel. Repeatable once for credit with a change of content and departmental consent. Prerequisite(s): completion of or concurrent enrollment in ENGL 700, or English graduate coordinator's consent.

**ENGL 728. Seminar in Modern British Literature (3).**

Advanced study of the authors, genres, themes and/or movements in British literature (1900 to 1980). Possible topics may include the British novelists (Conrad, Lawrence, Woolf, Forster, Joyce, Waugh, Greene, Amis, Durrell, Burgess, etc.) and; the British poets (Housman, Yeats, Lawrence, Eliot, Auden, Thomas, Hughes, etc.); the playwrights (Shaw, Beckett, Eliot, Coward, Maugham, etc.). The seminar may also focus on additional poets, novelists and dramatists, such as modernism, postmodernism, etc. Repeatable once for credit with change of content and departmental consent. Prerequisite(s): completion of or concurrent enrollment in ENGL 700, or English graduate coordinator's consent.

**ENGL 730. Seminar in Victorian Literature (3).**

Advanced study of the authors, genres, themes and/or movements in Victorian literature (1832-1900). Possible topics might include the Victorian novelists (William Thackeray, Charles Dickens, George Eliot, Anthony Trollope, Thomas Hardy, Rudyard Kipling, etc.); the Victorian poets (Tennyson, Browning, Arnold, Arthur Hugh Clough, Dante, Gabriel Rossetti, Christina Rossetti, George Meredith, Algernon Charles Swinburne, etc.); the Victorian prose writers (Carlyle, Mill, Newman, Ruskin, Arnold, Pater, etc.). The seminar may also focus on themes within Victorian literature, such as the Young England movement, the Higher Criticism and its effects, the Woman Question, industrialization and labor, or the Victorian Empire. Repeatable once for credit with a change of content and departmental consent. Prerequisite(s): completion of or concurrent enrollment in ENGL 700, or English graduate coordinator's consent.

**ENGL 733. Seminar in Contemporary Literature (3).**

Covers selected topics in the literature of the last quarter-century, including literature in translation. Deals with a broad range of authors and genres. Repeatable for credit with change of content and departmental consent. Prerequisite(s): completion of or concurrent enrollment in ENGL 700, or English graduate coordinator's consent.

**ENGL 780. Advanced Theory and Practice in Composition (3).**

For teaching assistants in English. Reviews new theories of rhetoric, recent research in composition, and new promising developments in composition programs in schools and colleges. Students are given practice in advanced writing problems, situations and techniques and may propose projects for further special study.

**ENGL 781. Cooperative Education (1-3).**

Similar to ENGL 481 in design and content, this course provides the student with practical experience, under academic supervision, that complements and enhances the student's academic program. Individual programs must be formulated in consultation with appropriate faculty sponsors and approved by departmental consent. Prerequisite(s): ENGL 700 and at least 12 total credit hours in graduate English courses.

**ENGL 785. Current Theories in the Teaching of Writing (3).**

Examines current areas of interest in rhetoric and composition. Specific topics vary from semester to semester but may include digital and multimedia composition; online writing instruction; language diversity; writing program administration; place, space and embodiment; transfer; and assessment. Students explore the teaching of writing in settings other than first-year composition, such as writing across the curriculum and writing in the disciplines, undergraduate writing majors, and business, technical and professional writing. Students leave this course with a fuller understanding of current research in rhetoric and composition and the many types of writing instruction available at colleges and universities.

**ENGL 787. Writing and Invention (3).**

Examines invention as a canon of rhetoric, a stage in the writing process, and a product of thinking, writing or making. Students survey theories of invention as they are expressed in rhetorical theory, composition pedagogy, historical works, and/or literature. Students consider the relationships among invention, originality and creativity, and the ways in which these concepts impact the teaching of English.

**ENGL 801. Creative Writing: Fiction (3).**

Advanced work in creative writing: literary fiction. Fulfills the university's professional and scholarly integrity training requirement covering research misconduct, publication practices and responsible authorship, conflict of interest and commitment, ethical issues in data acquisition, management, sharing and ownership. Repeatable for credit. Prerequisite(s): consent of creative writing director.

**ENGL 803. Creative Writing: Nonfiction (3).**

Advanced work in creative nonfiction: forms of nonfiction requiring a distinctive voice and demanding a formal artistry generally associated with fiction. Prerequisite(s): consent of creative writing director.

**ENGL 805. Creative Writing: Poetry (3).**

Advanced work in creative writing: literary poetry. Fulfills the university's professional and scholarly integrity training requirement covering research misconduct, publication practices and responsible authorship, conflict of interest and commitment, ethical issues in data acquisition, management, sharing and ownership. Repeatable for credit. Prerequisite(s): consent of creative writing director.

**ENGL 808. Graduate Studies in Film (3).**

Examines film as a literary form while acknowledging its unique status as a visual medium. Subjects the film medium to the standard

tools of literary criticism and critical theory to fully comprehend exactly how film functions as a narrative form. Directs students to develop a vocabulary of film terminology and to understand how film functions as a story-telling medium. Emphasizes interpretive strategies. Prerequisite(s): graduate standing, completion of or concurrent enrollment in ENGL 700, or English graduate coordinator's consent.

**ENGL 814. Graduate Studies in British and World Literature Before 1900 (3).**

Examines the major genres and authors of literature before 1900. Typical subject matter may include the rise of the novel, the changing role of poetry, and the evolution of drama, or similar topics. Repeatable once for credit with a change of content. Prerequisite(s): graduate standing, completion of or concurrent enrollment in ENGL 700, or English graduate coordinator's consent.

**ENGL 816. Graduate Studies in Major Author(s) (3).**

Careful study of the works of a major author with readings in secondary sources. Assignments may include reports, discussions and papers. Occasionally an appropriate pairing of major authors may be offered. Repeatable for credit with change of content. Prerequisite(s): completion of or concurrent enrollment in ENGL 700, or English graduate coordinator's consent.

**ENGL 840. Graduate Studies in Criticism (3).**

Selected topics in the theory and practice of literary criticism. Prerequisite(s): completion of or concurrent enrollment in ENGL 700, or English graduate coordinator's consent.

**ENGL 850. Directed Reading (1-3).**

For graduate students who want to pursue special research in areas not normally covered in coursework. A directed reading prospectus must be approved by the directing faculty and the graduate coordinator before registering. Repeatable for credit with departmental consent. Prerequisite(s): completion of or concurrent enrollment in ENGL 700, or English graduate coordinator's consent.

**ENGL 860. Graduate Seminar in Special Topics (1-3).**

Intensive study of selected texts, writers or literary problems. Seminar discussions, reports and research projects. Repeatable for credit with departmental consent. Prerequisite(s): completion of or concurrent enrollment in ENGL 700, or English graduate coordinator's consent.

**ENGL 875. MFA Final Writing Project (1-6).**

Final writing project preparation.

**ENGL 880. Writer's Tutorial: Fiction (3).**

Tutorial work in creative writing in literary fiction with visiting writer. Prerequisite(s): consent of creative writing director.

**ENGL 881. Writer's Tutorial: Poetry (3).**

Tutorial work in creative writing in literary poetry with visiting writer. Repeatable for six credit hours. Prerequisite(s): creative writing director's consent.

**ENGL 885. Craft of Fiction (3).**

Subject announced each semester. Advanced study in the forms and techniques in literary fiction such as plot, setting or voice. Repeatable once for credit with creative writing program director's consent. A student may not take more than one craft course per semester. Prerequisite(s): students not enrolled in the MFA program must receive permission from the instructor.

**ENGL 890. Master's Thesis (1-3).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. A thesis prospectus must be approved by the thesis advisor and the graduate coordinator before the student may register for ENGL 890. Repeatable for credit, but a maximum of 6 credit hours of ENGL 890 can be applied toward the degree

requirements. Pre- or corequisite(s): completion of or concurrent enrollment in ENGL 700, or English graduate coordinator's consent.

### **ENGL 895. Master's Portfolio (1-3).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Nonthesis graduate students must submit a master's portfolio near the end of their coursework containing representative documents from their course of study along with a self-reflective introductory statement. The portfolio must be ready for faculty review by December 1st for a fall enrollment, or May 1st for a spring enrollment. Repeatable for credit, but a maximum of 3 credit hours of ENGL 895 can be applied toward the degree requirements. Pre- or corequisite(s): ENGL 700 or English graduate coordinator's consent.

## **ENGT - Engineering Technology**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

### **ENGT 510. Solar and Wind Engineering (3).**

2 Classroom hours; 2 Lab hours. Covers types of solar generation, solar radiation, sun path charts, shading effect, sizing of solar panels, inverters, batteries, V-I curves for solar panels, grid connected and off-grid solar system, types of batteries, NEC codes for solar systems, economic analysis of PV system, carbon footprint, wind power generation, advantages and disadvantages of wind power, comparison between the wind energy and solar energy, wind energy system economics and environmental aspects and impacts. Prerequisite(s): ENGT 320 or EE 282.

### **ENGT 572. Applied Machine Learning (3).**

Introduces the key ideas in machine learning. Emphasis is on constructing machine learning applications and assessing performance rather than the theoretical underpinnings. Through lectures, readings and programming projects, students learn how to apply machine learning algorithms to real applications, run evaluations and interpret results. There is a heavy project focus, and when students complete the course, they are fully prepared to attack new problems using machine learning. Prerequisite(s): ENGT 322 and PSY 301 or STAT 370.

### **ENGT 574. Modeling and Simulation of Discrete Event Systems (3).**

Focuses on important methods and aspects of discrete event simulation modeling, including network modeling with particular emphasis on applications in manufacturing, services and business processes. Prerequisite(s): ENGT 354 or IME 254 or instructor's consent.

### **ENGT 590. Independent Study in Engineering Technology (1-3).**

Arranged individual independent study in specialized areas of engineering technology under the supervision of a faculty member. Repeatable for credit. Prerequisite(s): consent of the supervising faculty member.

### **ENGT 600. Water and Wastewater Treatment (3).**

Studies water quality constituents and introduces the design and operation of water and wastewater treatment processes. Prerequisite(s): ENGT 323, ENGT 370; or departmental consent.

### **ENGT 610. Hydraulics and Hydrology (3).**

Studies water resources engineering topics and methods. Hydraulic and hydrological concepts are explored through the application of fundamental conservation laws and ecologically-based design theory. Students apply the concept of fluid mechanics to pipe networks, hydraulic machinery, and open channel flow, flow control devices, flood routing, groundwater flow and management, and develop

quantitative approaches for answering questions in engineering hydrology. Prerequisite(s): ENGT 323 or departmental consent.

### **ENGT 620. Structural Analysis and Design (3).**

Studies the functions of structure, design loads, reactions and force systems; analysis of statically determinate structures including beams trusses and arches; energy methods of determining deflections of structures; influence lines and criteria for moving loads; analysis of statically indeterminate structures including continuous beams and frames. Prerequisite(s): ENGT 334 or departmental consent.

### **ENGT 664. Engineering Project Management (3).**

Introduction to the design and control of technologically-based projects. Considers both the theoretical and practical aspects of systems models, organizational development, project planning and control, resource allocation, team development and personal skill assessment. Prerequisite(s): IME 255, (IME 254 or ENGT 354), all with a C or better.

## **ENTR - Entrepreneurship**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

### **ENTR 605. Technology Entrepreneurship (3).**

The innovative transformation of ideas and technical knowledge (intellectual property) into commercially useful applications is a key driver of economic development. Students are immersed in the process of moving intellectual property from mind to market. Technology commercialization concepts, tools and techniques are applied to active technologies from university research, students, community and national research lab sources. Students evaluate the potential for intellectual property to be the basis for a startup enterprise or licensed to an existing business. Prerequisite(s): junior standing.

### **ENTR 608. Selling and Sales Force Management (3).**

Cross-listed as MKT 608. Analysis of current behavioral concepts of personal selling and the problems and policies involved in managing a sales force. Prerequisite(s): MKT 300 with a grade of C+ (2.300) or better, MKT 405.

### **ENTR 620. Growing and Managing an Entrepreneurial Firm (3).**

Focuses on the organization, operation, marketing and financial management of an ongoing entrepreneurial firm. Emphasizes the strategic management of growth associated with a rapidly changing business, as distinguished from small business management, which could include small enterprise units that are static. Teaches the practical aspects of managing a growing business on a day-to-day basis. Practical application to intrapreneurship, such as growing a division or department within a larger organization. For undergraduate credit only. Prerequisite(s): ENTR 310, and junior standing.

### **ENTR 668. New Venture Development (3).**

Emphasizes the development of a comprehensive business plan around a unique product or service idea that satisfies a customer need or solves a customer problem. Focuses on conceptualizing a value proposition and business model for a new venture and validating each with customers and industry experts. Financial and organizational principles associated with entrepreneurial finance including financial structuring of the firm, pro forma development of financial statements, and the capitalization of the firm are also examined. Provides opportunity to pitch and present one's business concept and plan as well as to learn how to evaluate the business ideas of others. For undergraduate credit only. Prerequisite(s): ENTR 440, 455, senior standing.

**ENTR 690. Special Topics in Entrepreneurship (1-3).**

Advanced course with in-depth study of emerging topics in entrepreneurship. Repeatable for credit with instructor's consent. Prerequisite(s): ENTR 310, junior standing or instructor's consent, advanced standing.

**ENTR 690W. Study Abroad in France A (2-3).**

This course establishes a foundation of entrepreneurship fundamentals and small business management principles. We will discuss the steps, principles, and methods associated with the venture creation process and how to generate and evaluate good business ideas, and develop those ideas in ways that are attractive to business partners and investors.

**ENTR 705. Technology Entrepreneurship (3).**

Explores issues surrounding the transformation of knowledge into commercially useful products, services and viable businesses. Employs a hands-on experiential approach using current active technologies from the university, community or national research laboratories. Market validation, opportunity recognition, intellectual property protection (patents, copyright, trade secrets) and valuation are core learning elements employed in the commercial-potential evaluation process. Evaluation documents produced in the course are provided to intellectual property owners to aid moving a technology into commercial markets. Prerequisite(s): junior standing.

**ENTR 706. Seminar in New Product and Technology Development (3).**

Cross-listed as MKT 706. Provides a form to the function of idea commercialization. Examines the product development practices of successful, innovative companies and focuses on how customer needs can be translated into products and innovations. Students explore idea generation, market validation, prototype development, product concept testing, product launch strategies, postlaunch product evaluation, and managing innovative teams. Students apply learning through developing and testing a product idea that solves a customer problem.

**ENTR 750. Workshop in Entrepreneurship (1-4).**

Prerequisite(s): junior standing.

**ENTR 855. Entrepreneurial Finance Seminar (3).**

In-depth look at the financial side of starting, maintaining and (perhaps) ultimately, exiting a small and/or new business venture. Begins with an overview of the entrepreneurial process, highlighting the importance of finance in the many facets of running a business. Topics include: the measure and evaluation of financial performance, consideration of the various sources of capital available to companies, valuation of business ventures and associated securities laws, venture capital, and the options available for exiting a business.

**ENTR 865. Entrepreneurship, Creativity and Innovation (3).**

Students learn how to use their unique mix of knowledge, talents, skills, abilities and resources to develop a value proposition for potential customers. Course has two major components. The first is ideation. Initially, it focuses on identifying problems and developing solutions. This requires students to improve their creative problem solving skills. Students then learn how to systematically evaluate business ideas and develop functional business models. Students interact with MID faculty, other students, creative professionals and entrepreneurs in a seminar format.

**ENTR 890. Seminar Special Topics (1-3).**

Repeatable for credit with instructor's consent.

**ENTR 891. Directed Studies (1-5).**

Prerequisite(s): instructor's consent.

**ETHS - Ethnic Studies**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**ETHS 512. Diversity and Aging (3).**

*General education social and behavioral sciences course*. Cross-listed as AGE 512. Introduces students to issues in aging that are unique to minority older adults. Demonstrates differences in the aging experience by race/ethnicity and addresses the differential patterns of health and illness in later life in relation to race/ethnicity, gender and culture. In addition, the student develops an appreciation for how race/ethnicity affects mental and social dimensions of life. Attention is given to the impact on the social, financial and health aspects of those who speak a language other than English. Course perspective is interdisciplinary, taking into account the physical, psychological, interpersonal and social influences which shape our understanding of the challenges older minorities face when relocating to the United States. *Course includes diversity content*.

**ETHS 579. Asian Women in Modern History (3).**

Cross-listed as HIST 579 and WOMS 579. Examines women's historical and contemporary experiences in Asian America and eight major countries in modern Asia. Covers topics on Asian women's activism in relation to nationalism and women's rights. Investigates Asian women's roles and statuses in the family and society and their educational attainment and contributions to the export-oriented industrialization of the Asia-Pacific region. Examines the intra-regional migration of female guest workers among various countries in Asia. Traces the ways in which the changes in immigration laws during the 20th century affect patterns of Asian women's migration to the United States. Introduces writing that integrates Asian women's lives and Asian American experiences into the discourses on ethnicity, national origin, class, gender and sexual orientation in the United States and the Asia-Pacific region. *Course includes diversity content*.

**ETHS 580. Individual Projects: Ethnic Studies (1-3).**

Students conduct independent research related to a specific ethnic group. *Course includes diversity content*. Repeatable for a total of 6 hours. Prerequisite(s): 50 hours of Wichita State credit or program consent.

**ETHS 725. Concepts of Cross-Cultural Communication (3).**

Critical survey of the concepts of cross-cultural communication. In-depth examination of the rationale used to evaluate different ethnic groups' language and behavior. Provides a conceptual understanding of special implications and necessary adaptations of communication to, between and among diverse ethnic groups in our society. *Course includes diversity content*.

**FA - Fine Arts**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**FA 590. Special Topics in the Fine Arts (1-4).**

For group instruction. Repeatable for credit. Involves interdisciplinary upper-division/graduate-level topics with the fine arts (music, art, dance and theatre). Prerequisite(s): senior undergraduate or graduate standing or instructor's consent.

**FA 710. Seminar in Creativity and Innovation (1-3).**

As one of four core courses in the Master of Innovation Design, the purpose of this seminar is to help the student better understand and appreciate the subject of creativity. To that end, this course focuses on developing new ways of thinking which are different from those

typically learned in single discipline design programs. The seminar provides many opportunities to apply these new ways of thinking through class exercises, possible course projects, and conversations with a wide array of guests who have prospered through incorporating creativity/innovation into what they do professionally. Students learn techniques for improving the flexibility and originality of their thinking and explore approaches used by others to create and sustain high levels of innovation. Topics include: personal thinking preferences, everyday creativity and eliminating mental blocks, creative thinking techniques, idea selection approaches, teaming techniques for creativity, conditions that promote creativity, design for interaction, disruptive technologies, and intellectual property. Seminar uses fun and hands-on activities to stimulate innovation. Repeatable for credit.

**FA 750. Workshop (1-4).**

Intensive study of topics related to fine arts. Differing topics are denoted by a letter following the course number (i.e., 750C, 750U, etc.).

**FA 750M. Arts Partners (1).**

Provides professional development in partnership with Wichita Arts Partners.

**FA 815. Contemporary Issues in American Arts Programs (3).**

Examines major environmental trends including changing demographics, new business models, rapidly developing technology and globalization, and understanding their implications for the arts. Required for students in the master's in arts leadership and management.

**FA 820. Entrepreneurial Thinking in the Arts (3).**

Designed for current and future arts leaders interested in looking critically at organizational practice and bringing innovative solutions to old problems in a contemporary context. Required for the master's in arts leadership and management.

**FA 830. Shaping Arts in the 21st Century (3).**

Focuses on the act of energizing others within the arts and learning how to advocate for the arts within state and federal government, local communities, donors and audiences. Students interact with faculty in the leadership program, other students and arts professionals in a seminar format. Required for the master's in arts leadership and management.

**FA 835. Reaching New Audiences - Arts Marketing in the 21st Century (3).**

Studies current trends in digital marketing, social media outreach, and nontraditional audience outreach. Students work with faculty and arts professionals to understand how to build audiences and expand outreach opportunities beyond traditional markets. Required for the master's in arts leadership and management.

**FA 840. Managing Arts Organizations (3).**

Introduction to developing management skills for arts executives. In this seminar, students learn basic management skills specific to arts nonprofits including: strategic planning, fundraising, marketing and organizational structures. Required for the master's in arts leadership and management.

**FA 885. Thesis (1-6).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. A total of 6 credit hours can be used toward the degree. Repeatable for credit.

**FA 886. Final Project (1-3).**

For students intending the final project as the capstone work of the master's in arts leadership and management. Final projects include internships, marketing campaigns, fundraising projects, or other

projects relevant to the field as approved by advisor. A total of 3 credit hours can be counted towards the degree.

## FIN - Finance

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**FIN 610. Insurance and Risk Management (3).**

Topics include risk identification and analysis, risk management, legal aspects of insurance, structure of the insurance industry, regulation, reinsurance, underwriting, financial issues and analysis, policy analysis, and an overview of many types of personal and commercial insurance including: automobile, homeowner's, property and casualty, umbrella, commercial general liability, errors and omissions, directors and officers, health insurance (including traditional indemnity, HMO and PPO), disability, long-term care and life. For undergraduate credit only. Prerequisite(s): FIN 340 with a grade of C or better, junior standing, advanced standing.

**FIN 611. Real Estate Finance (3).**

Cross-listed as RE 611. Covers the institutions and instruments used to finance residential and commercial properties, and provides essential knowledge and skills for students who are interested in a career as a commercial banker, mortgage banker or an analyst or investor in mortgage-related securities. Topics include fixed-rate and alternative mortgage instruments, financial analysis and decision making, residential mortgage underwriting, mortgage market regulations, primary and secondary mortgage market structure and institutions, and mortgage-backed securities. Prerequisite(s): FIN 340 with a grade of C or better, junior standing, advanced standing.

**FIN 618. Real Estate Investment Analysis (3).**

Cross-listed as RE 618. Covers the tools and techniques used to evaluate the financial profitability of real estate investments, as well as real estate decisions affecting businesses. Students learn about pro forma and discounted cash flow analysis of real estate, the effects of leverage on real estate investments, federal tax treatment of real estate investments, and disposition and renovation decisions. In addition, topics such as lease-versus-own analysis, sale-leasebacks and other corporate real estate issues are discussed. Prior enrollment in RE 310 recommended for students with a declared emphasis in real estate. Prerequisite(s): FIN 340 with a grade of C or better, junior standing, advanced standing.

**FIN 620. Investments (3).**

Analyzes investment risks, financial information and industry characteristics. Examines corporate, government, municipal and financial institution securities and other investment types. Presents personal portfolio construction, supervision and management. Prerequisite(s): FIN 340 with a grade of C or better, junior standing, advanced standing.

**FIN 622. Future and Options Markets (3).**

Overview of the futures and options markets. Discusses basic theoretical concepts as well as the practical issues of hedging and speculating in these markets. Prerequisite(s): FIN 340 with a grade of C or better, junior standing, advanced standing.

**FIN 625. International Financial Management (3).**

Cross-listed as ECON 674 and IB 625. Studies the international financial and monetary system, emphasizing currency markets. Also examines market instruments and techniques, including synthetic and derivative securities and their application to management of currency risk in international trade and finance. Prerequisite(s): FIN 340 with a grade of C or better, junior standing.

**FIN 631. Fixed Income Securities and Markets (3).**

Analyzes the market for fixed-income securities from the investor's point of view. Emphasizes pricing these securities and understanding the factors that determine the structure and level of interest rates. Portfolio management techniques and using derivatives are also covered. Prerequisite(s): FIN 340 with a grade of C or better, junior standing, advanced standing.

**FIN 632. Bank and Financial Institution Management (3).**

Presents and analyzes asset and liability management by banks and financial institutions. Also covers financial institution structure, management, regulation and operations. Covers risk management topics in detail. Prerequisite(s): FIN 340 with a grade of C or better, junior standing, advanced standing.

**FIN 635. Commodity and Energy Trading (3).**

Focuses on trading in commodity and energy markets. Introduces how commodity and energy markets function, emphasizing trading and hedging strategies. Explores the control systems trading firms need in place to manage market, credit and liquidity risks, as well as the financial accounting, regulatory compliance and tax issues that arise from trading. Much of the classwork is hands-on exercises. Students engage in a simulated commodity and energy trading game and use real-world database management software from Allegro Development. Students also have the opportunity to interact with local business experts in commodity and energy trading throughout the semester. Prerequisite(s): FIN 340 with a grade of C or better, junior standing, advanced standing.

**FIN 675. Analytics Decision Modeling with Spreadsheets (3).**

Cross-listed as BSAN 675. Introduces key principles of business analytics modeling: descriptive, predictive and prescriptive. Models covered in each area may differ from semester to semester. Students learn how to make decisions not based on intuition or "gut feel," but on models and data. Course adopts a practical approach to the modeling of a wide variety of business problems in various functional areas. Models are built in Excel and add-ins to Excel, allowing students to gain advanced Excel skills, which will benefit them in their careers. For undergraduate credit only. Prerequisites: DS 350 and FIN 340 each with a grade of C or better; BADM 162, ECON 231, and ECON 232 or equivalents; junior standing; advanced standing; or instructor's consent.

**FIN 750. Workshop in Finance (1-4).**

A workshop course. Topic of course varies by semester. Check with department for information on upcoming topics. Prerequisite(s): FIN 340 with a grade of C or better, junior standing.

**FIN 790. Seminar in Selected Topics (1-3).**

Umbrella course created to explore a variety of subtopics differentiated by letter (e.g., 790A, 790B, etc.). Students should enroll in the lettered courses with specific topics in the title rather than in this root course.

**FIN 790A. Finance Analytics: Contemporary and Traditional Topics (3).**

Surveys contemporary issues in finance, introduces selective finance topics/methods that use analytics, and enables students to learn SAS software to conduct basic descriptive and prescriptive analysis of stock market data. The survey of contemporary finance issues includes topics such as digitalization of cash (i.e., cryptocurrencies and underlying block chain technology), payment systems and trading platforms. The selective topics in traditional finance analytics include portfolio optimization, binomial option pricing. SAS programming includes quantitative finance research methods such as event study, portfolio construction and testing using SAS. Prerequisite(s): FIN 340 with a grade of C (2.000) or FIN 803 (or equivalent).

**FIN 850. Managerial Finance (3).**

Provides knowledge and tools to make informed investment and financing decisions. Includes capital markets, capital budgeting, decision making under uncertainty, asset pricing models, capital structure, payout policy, restructuring and corporate control issues. Prerequisite(s): MBA 803 or equivalent.

**FIN 860. Advanced Managerial Finance (3).**

Studies advanced strategic issues that impact financial managers. Includes corporate valuation, working capital management, capital structure decisions such as initial public offerings, leveraged buyouts, restructurings, mergers and acquisitions, and issues related to entrepreneurial finance. Prerequisite(s): FIN 850.

**FIN 865. Advanced Investment Analysis and Portfolio Management (3).**

Studies the theory and practice of security valuation and investment management. Includes portfolio analysis, asset allocation, fixed income securities and term structure, equity analysis, derivatives and measurement of performance. Prerequisite(s): MBA 803 or equivalent.

**FIN 866. Public Financial Management (3).**

Cross-listed as PADM 866. Addresses special topics of government capital budgeting and financing as well as general public infrastructure management skills and knowledge useful for public administrators and citizens. Specific topics include: capital planning, budgeting, financing strategies and options, debt management, policy and issuance processes, as well as innovative public capital financing such as public-private partnerships and state-local revolving funds. Prerequisite(s): PADM 865 or instructor's consent.

**FIN 890. Seminar Special Topics (1-3).**

Repeatable for credit with departmental consent. Prerequisite(s): FIN 850 and MBA 800 or equivalent.

**FIN 891. Directed Studies (1-5).**

Prerequisite(s): FIN 850 and MBA 800 or equivalent.

## FREN - French

**Although a complete graduate program is not currently available in French, the following courses may apply toward a master's degree if approved in advance of enrollment by the student's advisor, the chairperson of the department of modern and classical languages and literatures, and the dean of the Graduate School.**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**FREN 501. French for Business (3).**

Designed for French speakers at the intermediate level seeking to communicate accurately in professional situations and especially for those pursuing parallel studies in business or management. Prerequisite(s): FREN 324 or departmental consent.

**FREN 505. Advanced French Phonetics (3).**

2 Classroom hours; 2 Lab hours. Cross-listed as LING 505A. Includes articulatory phonetics, phonemics, sound/symbol correspondences, dialectal and stylistic variations. Required for future French teachers. Prerequisite(s): any 200-level FREN course or departmental consent.

**FREN 515. Major Topics in French (1-4).**

Special studies in (A) language, (B) literature, (C) commercial French, (D) the language laboratory, (E) music, (F) composition, (I) problems in teaching French, (J) civilization, (L) translation, (K) conversation, and (M) phonetics. Repeatable for credit. Prerequisite(s): departmental consent.

**FREN 515B. Literature (1-4).**

Intensive reading and analysis of four celebrated French & Francophone novels. Required essay: a 10-12 page research paper on one of these works.

**FREN 520. Novel and Film (3).**

Analyzes and discusses celebrated French novels together with major film versions of the same. Focuses on the status of the image in relation to the works' historical and cultural contexts. Prerequisite(s): FREN 300.

**FREN 525. Advanced French Conversation (3).**

Designed to increase proficiency in spoken French. Assignments include oral reports, dialogs and work in the language laboratory. Prerequisite(s): FREN 324 or departmental consent.

**FREN 526. Advanced French Composition and Grammar (3).**

Emphasizes theme writing, original compositions and detailed study of modern French grammar. Prerequisite(s): FREN 324 or departmental consent.

**FREN 540. French Literature in English Translation (3).**

*General education humanities course.* Topic varies. May be used to satisfy the LAS literature requirement and may count toward a French major or minor if readings and papers are done in French.

**FREN 541. French Literature of Africa and the Caribbean in Translation (3).**

*General education humanities course.* Studies the concept of Negritude through the works of major African and Caribbean writers. No knowledge of a foreign language is necessary. May be used to satisfy the LAS literature requirement and may count toward a French major or minor if readings and papers are done in French.

**FREN 551. French Civilization: The Middle Ages to the Restoration (3).**

Emphasizes key aspects of the civilization of France as seen in its art, architecture, political structure, social evolution and intellectual traditions. Interdisciplinary course complements studies in French language and literature. Classwork and required readings are in French. Pre- or corequisite(s): FREN 300.

**FREN 552. Contemporary French Civilization (3).**

Emphasizes the major events, themes, ideas, trends and movements in French civilization since the Revolution. Interdisciplinary course complements French language and literature courses. Classwork and readings are in French. Pre- or corequisite(s): FREN 300.

**FREN 623. Seminar In French (2-3).**

Seminar in French literature, language or civilization. Repeatable for credit. Prerequisite(s): FREN 300.

**FREN 629. Medieval French Literature (3).**

Analyzes and discusses major French works from 900 to 1500, the literary movements to which they pertain, and the place of individual authors in the overall tradition. Prerequisite(s): FREN 300.

**FREN 630. Renaissance French Literature (3).**

Analyzes and discusses major French works, 1500-1600. Prerequisite(s): FREN 300.

**FREN 631. 17th Century French Literature (3).**

Prerequisite(s): FREN 300.

**FREN 632. 18th Century French Literature (3).**

Prerequisite(s): FREN 300.

**FREN 633. 19th Century French Literature (3).**

Prerequisite(s): FREN 300.

**FREN 634. 20th Century French Literature (3).**

Analyzes and discusses major works of French fiction, poetry and drama from the Belle Epoque through World War II. Prerequisite(s): FREN 300.

**FREN 635. Introduction to Romance Linguistics (3).**

Cross-listed as LING 635 and SPAN 635. Provides a contrastive examination of the phonology, morphology and syntax of the major contemporary Romance languages (French, Spanish, Italian, Portuguese, Catalan and Romanian). Introduces students to the sound and writing system and basic grammar of Latin, and contrasts the phonological and grammatical systems of the contemporary Romance languages (French and Spanish in particular) with those of Latin. It compares specific features of the modern Romance languages synchronically (i.e., apart from Latin) as well. Students are advised to have a solid grounding in at least one Romance language (preferably French or Spanish) and a familiarity with at least one other (French, Spanish, Latin, Italian or Portuguese). Prerequisite(s): departmental or instructor's consent.

**FREN 636. Contemporary French Literature (3).**

Analyzes and discusses major works of French fiction, poetry and drama, 1945-present. Prerequisite(s): FREN 300.

**FREN 726. French Composition and Stylistics (3).**

Offers background in rhetoric and stylistics as an approach to literary models, with a view to developing the creative use of style together with grammatical accuracy in writing. Practice in revision forms the basis of this course. Prerequisite(s): FREN 526 or departmental consent.

**FREN 750. Workshop in French (2-4).**

Repeatable for credit.

**FREN 750C. Contextualized Language Instruction (2).**

Cross-listed as SPAN 750C. Workshop on foreign language pedagogy. Required for GTAs in Spanish; open to advanced undergraduate French, Latin, or Spanish teaching majors. Prerequisite(s): enrolled in the MCLL Teaching Major, acceptance into the MA program in Spanish or French, or departmental consent.

**FREN 815. Special Studies in French (1-3).**

Prerequisite(s): departmental consent. Repeatable for credit.

## GEOG - Geography

**Although there is no graduate program in geography, the following courses are available.**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**GEOG 510. World Geography (3).**

A study of world regions including an analysis of each region's physical, political, economic, historical and cultural geography. Focus on a specific geographical problem for in-depth study and analysis. May not be taken if credit has been received for GEOG 210. Prerequisite(s): instructor's consent.

**GEOG 530. Geography of Latin America (3).**

*General education social and behavioral sciences course.* Physical, political, economic, historical and human geography of Latin America.

**GEOG 542. Geography of Europe (3).**

*General education social and behavioral sciences course.* Physical, political, economic, historical and human geography of Europe.

**GEOG 695. Special Studies in Geography (1-3).**

3 or 2 Classroom hours; 3 Lab hours. Lab fee. (Lab is included when appropriate.) Systematic study in a selected area of topical interest in

geography. Course given on demand; repeatable for credit when content differs. May require field trips. Prerequisite(s): junior standing.

## GEOL - Geology

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

### GEOL 522. Sedimentology and Stratigraphy (4).

3 Classroom hours; 3 Lab hours. Origin, classification, primary structures and physiochemical processes controlling deposition of sedimentary rocks. Surveys modern and ancient sedimentary depositional environments and petrographic study of sedimentary rocks in thin sections. Description, classification, methods of correlations and determination of relative ages of stratigraphic rock units; stratigraphic principles and practice, the nature of cyclic sedimentation and controls on deposition, and elements of sequence stratigraphy. May require field trips. Prerequisite(s): GEOL 102 (with lab) or GEOL 111.

### GEOL 540. Field Map Methods (3).

6 Lab hours. Field mapping methods with special reference to use of level, compass, barometer, alidade and airphotos. Field trips required. Prerequisite(s): GEOL 102 (with lab) or 111 or GEOL/GEOG 201.

### GEOL 544. Structural Geology (3).

2 Classroom hours; 2 Lab hours. Stress-strain theory and mechanics of rock deformation, description, and genesis of secondary structural features in crustal rocks resulting from diastrophism, elements of global tectonics, and laboratory solution of geologic problems in three dimensions and time. May require field trips and field problems. Prerequisite(s): MATH 112 or 123; GEOL 312; and GEOL 324 or 522. Corequisite(s): GEOL 544L.

### GEOL 560. Geomorphology and Land Use (3).

Cross-listed as GEOL 810AG. Identification of landforms and their genesis, processes producing landforms, the influence of geomorphology in aspects of natural hazards such as landslides, floods, earthquakes and volcanic activity; soil erosion, drainage basin modification, coastal and desert environments, mineral resource exploitation, and their effects on humans; importance of these influences in environmental management and land-use planning. Prerequisite(s): GEOL 111 or GEOL 102 or GEOL/GEOG 201.

### GEOL 564. Remote Sensing Interpretation (3).

2 Classroom hours; 2 Lab hours. Introduces interpretation techniques for most types of images acquired by remotely positioned means. Physical principles that control various remote sensing processes using the electromagnetic spectra are applied to geology, land use planning, geography, resource evaluation and environmental problems. Derivative maps generated from a variety of images. May require field trips. Prerequisite(s): GEOL 102 or 111 or GEOL/GEOG 201.

### GEOL 570. Biogeology (3).

2 Classroom hours; 2 Lab hours. *General education math and natural sciences course*. Systematic survey of major fossil biogeological materials, analysis of the origin and evolution of life, and paleoecological interpretation of ancient environments and climates. Includes handlens and binocular microscopic examination of major fossil biogeological materials. Includes application of analyzed fossil data to the solution of problems in biogeochronology, paleoecology, paleoclimatology and paleogeography. Cites examples from fields of invertebrate, vertebrate and micropaleontology, and palynology. May require museum and field trips. Prerequisite(s): GEOL 312. Corequisite(s): GEOL 570L.

### GEOL 574. Special Studies in Paleontology (3).

2 Classroom hours; 2 Lab hours. *General education math and natural sciences course*. A systematic study in selected areas of biogeology and paleontology. Content differs, upon demand, to provide in-depth analysis in the fields of: (A) invertebrate paleontology, (B) vertebrate paleontology, (C) micropaleontology, (D) palynology, and (E) paleoecology. Gives appropriate laboratory instruction in the systematics, taxonomy and biogeological relationships within the selected fields listed. May require field trips. Repeatable for credit to cover all five areas listed.

### GEOL 574C. Micropaleontology (3).

*General education math and natural sciences course*.

### GEOL 621. Geochemical Cycling (3).

Capstone course. The geochemistry of earth materials and the important geochemical processes; cycles operating on and within the atmosphere, hydrosphere and lithosphere through time; anthropogenic effects on these cycles today. Prerequisite(s): GEOL 102 (with lab) or GEOL 111 and CHEM 211; or instructor's consent.

### GEOL 630. Field Studies in Geology (2-6).

Off-campus, systematic field study in a selected area of geological significance. Course given upon demand, repeatable for credit when locality and/or content differ. Where appropriate, travel, lodging and board costs are charged. Prerequisite(s): instructor's consent.

### GEOL 640. Field Geology (6).

Capstone course. Field investigation of sedimentary, igneous and metamorphic rock units and their structures. Includes the application of mapping methods in solving geologic problems. Held at an off-campus field camp for five weeks (including weekends). Preparation of geologic columns, sections, maps and an accompanying report are due on campus during the sixth week. Prerequisite(s): GEOL 324, 522, 540, 544.

### GEOL 650. Geohydrology (3).

2 Classroom hours; 2 Lab hours. Capstone course. The hydrologic cycle, physical and chemical properties of water; fluid flow through permeable media, exploration for and evaluation of groundwater, water quality and pollution, and water law. Prerequisite(s): GEOL 522, MATH 242 and 243; or instructor's consent. Corequisite(s): GEOL 650L.

### GEOL 657. Earth Science Instructional Methods (3).

Practice in teaching an introductory course in the earth sciences. Developing and presenting the latest scientific laboratory techniques and evaluating their effectiveness. May be taken more than once if content and objectives differ. Prerequisite(s): senior standing and department chairperson's permission.

### GEOL 678. Geologic Perspectives on Climatic Change (3).

Capstone course. Modern climate and climatic changes and analysis of climatic deterioration; systematic study of geologic evidence of climate change through time. Emphasizes theoretical causes, feedback mechanisms and recognition of effects on climatic perturbations in the rock record. Prerequisite(s): GEOL 312, 522.

### GEOL 682. Petroleum Geology (3).

2 Classroom hours; 2 Lab hours. The origin, migration and accumulation of oil and gas in the earth's crust; reservoir trap types in common hydrocarbon fields, origin and types of porosity systems, and distribution of world petroleum supplies. Introduces subsurface study techniques. May require field trips. Prerequisite(s): GEOL 522. Corequisite(s): GEOL 682L.

### GEOL 684. Methods of Subsurface Analysis (2).

1 Classroom hour; 2 Lab hours. Methods of remotely logging and describing the geologic occurrence of subsurface strata; characterization

of subsurface strata, including laboratory analysis of recovered subsurface samples; application to petroleum geology, mineral resource evaluation and environmental geology. Prerequisite(s): GEOL 312, 522; or instructor's consent.

**GEOL 690. Special Studies Geology (1-3).**

Systematic study in selected areas of geology. Offered on demand; repeatable for credit when content differs. Requires laboratory work or field trips (instructor's option). Prerequisite(s): instructor's consent.

**GEOL 690AJ. Computer Methods in Science (3).**

1 Classroom hour; 4 Lab hours. Cross-listed as EEPS 701. Surveys computer applications commonly used by scientists, emphasizing nonstatistical applications. Includes computer-assisted instruction, data management, presentation packages, internet resources, digital image analysis, graphics and spreadsheets, reference acquisition and management, desktop publishing, and specialized applications for modeling, simulations, mapping and time-series analysis. Lectures and demonstrations involve individual hands-on activities and student projects. Prerequisite(s): graduate standing or instructor's consent.

**GEOL 690AK. Soils (3).**

Geologic analysis of soil types, their formation, occurrence and mineralogy; soil management and conservation, environmental aspects of soil occurrence including stability studies, pollution and reclamation.

**GEOL 690AO. History of Geology (3).**

The course examines the historical development of Earth science from prehistoric to modern times. The course analyzes the various techniques of data collection and interpretation that were used throughout history.

**GEOL 690AP. Petroleum Engineering: An Introduction for Geoscientists (3).**

An introduction to the theory and application of petroleum engineering to oil and gas exploration and development. Oriented to students with a geology or geoscience background.

**GEOL 690AQ. Mass Extinctions (3).**

Cross-listed as GEOL 430D. Mass extinctions have punctuated the geologic history of this planet. This course will compare the past extinction causation to our modern world for similarities and differences.

**GEOL 690AR. Environmental Politics (3).**

Cross-listed as POLS 305. Examines the politics of environmental protection and the management of natural resources at local, national and global levels. No prerequisites, but a background in introductory political, economic and environmental science courses is helpful.

**GEOL 690AS. Costa Rica Sustainability Travel Seminar (3).**

Provides an opportunity for students to experience a new country, its ecology, sustainability practices, culture, language and history. It is an interdisciplinary travel seminar that allows the student to travel abroad and learn experientially to gain credit for studies of ecology sustainability practices, culture, language, history, geography, geology and biodiversity. Prerequisite(s): instructor's consent.

**GEOL 690Z. Applied GIS (3).**

Focuses on emerging supplementary and advanced geographic information system (GIS) skill sets. Students engage in an advanced level analysis of ESRI ArcGIS software. GIS spatial analyst, GIS spatial modeler, GIS visualization techniques, python scripting and ArcSDE are fully utilized. Individual projects are also required.

**GEOL 692. Spatial SQL and SDE (3).**

Spatial-SQL is a structural query language that allow students to effectively develop and manage spatial database. Course teaches principles of ESRI's spatial database engine (ArcSDE) which is designed to support multiple users to store and manage innumerable spatial data in a central location, and at the same time, enables others to

develop (create, edit or modify and share) as well as manage the same data (concurrent multiuser geodatabase editing). Students learn how to develop geodatabase, manage the ArcSDE (enterprise geodatabase) service, script data loads with command-line ArcSDE tools, and install ArcSDE. Additionally, students are acquainted with the standard transact SQL script used frequently by Microsoft DBA's to manage large data.

**GEOL 693. Python for Geospatial Analysis (3).**

Students learn how to write Python scripting to perform geospatial analysis duties. Course deeply teaches how to use Python codes more efficiently to enhance, augment and even automate enormous amounts of GIS analytical tasks. The majority of this course is not spent learning to program in the Python language but on how to integrate different spatial libraries within Python code. Students learn how to do different GIS-related spatial analysis in Python programming language. Each lesson is a tutorial with specific topic(s) plus exercises where the aim is to learn how to solve both natural and social science problems while using Python tools.

**GEOL 698. Independent Study in Geology (1-3).**

Independent study on special problems in selected areas of geology: (a) general, (b) mineralogy, (c) petrology, (d) structural, (e) paleontology, (f) economic geology, (g) sedimentation, (i) stratigraphy, (j) geophysics, and (k) petroleum. Requires a written final report. Prerequisite(s): consent of sponsoring faculty.

**GEOL 720. Geochemistry (3).**

The chemistry of natural aqueous solutions and their interaction with minerals and rocks; thermodynamics and kinetics of reactions; emphasizes application to sedimentary environments and environmental problems. Requires some laboratory work. Prerequisite(s): GEOL 324 and CHEM 212 or instructor's consent.

**GEOL 724. Soils (3).**

Geologic analysis of soil types, their formation, occurrence and mineralogy; soil management and conservation, environmental aspects of soil occurrence including stability studies, pollution and reclamation.

**GEOL 726. Carbonate Sedimentology (3).**

2 Classroom hours; 2 Lab hours. The origin and genetic description of carbonate particles, sediments and rocks, mineralogy and textural classifications, depositional environments in carbonate rocks and analysis of modern and ancient depositional system. May require field trips. Prerequisite(s): GEOL 522 or equivalent. Corequisite(s): GEOL 726L.

**GEOL 727. Carbonate Diagenesis (3).**

2 Classroom hours; 2 Lab hours. Analyzes diagenesis of carbonate sediments and rocks. Includes mineralogic stability in natural waters, meteoric, marine and deep-burial diagenesis, dolomitization processes and products, trace-elements and isotopes as diagenetic tools, cathodoluminescence and X-ray diffraction studies of carbonates; origin and porosity. Prerequisite(s): GEOL 726 or instructor's consent.

**GEOL 740. Basin Analysis (3).**

A practical course in analysis of petroleum-bearing or other sedimentary basins; emphasizes detailed subsurface mapping to document depositional, tectonic and burial history of sedimentary basins; subsurface lithologic and geochemical sample analysis and evolution of sedimentary facies systems and hydrocarbons maturation history. Includes compilation of existing data to determine geologic evolution of basins. Prerequisite(s): GEOL 682, 684 or instructor's consent.

**GEOL 745. Advanced Stratigraphy (3).**

Analysis of stratigraphic sequences at the local to global scales in terms of sequence stratigraphic concepts and high-resolution interpretation

of depositional sequences (from outcrop and subsurface data); seismic sequence stratigraphy, and significance of unconformities in sequence identification and development; local to global correlation of sequences and sea level history through time; cratonic sequences of North America. Required seven-day field trip. Prerequisite(s): GEOL 312, 522, 726.

**GEOL 750G. History of Geology (3).**

The course examines the historical development of Earth science from prehistoric to modern times. The course analyzes the various techniques of data collection and interpretation that were used throughout history.

**GEOL 751. Advanced Geohydrology (3).**

Integrations of practical and theoretical coverage of subsurface fluid flow as applied to shallow aquifers. Covers the mass transport in both the saturated and vadose zones as well as the occurrence and movement of nonaqueous fluids. Covers groundwater quality, sources of groundwater contamination, retardation of contaminants, retardation and attenuation of dissolved solids, and the response of inorganic and organic substances to subsurface aqueous and framework chemistries. Computer simulation models used whenever practical along with detailed analysis of case histories, including those related to environmental geoscience. Prerequisite(s): GEOL 650, 681, MATH 344, or instructor's consent.

**GEOL 752. Climatic Evolution of Earth (3).**

Basics of climatology and paleoclimatology, and recognition of paleoclimatic indicators in the rock record. Climatic changes at different scales in Earth history and possible causes, and nature of climatic records. Roles of climate change on the evolution of Earth's biosphere, hydrosphere, atmosphere and lithosphere. Field trip(s) may be required. Prerequisite(s): GEOL 721, graduate standing, or instructor's consent.

**GEOL 760. Exploration Geophysics (3).**

Introduces the theory and application of geophysical techniques for hydrocarbon, mineral and groundwater prospecting. Includes use of seismic techniques, instrumentation for acquisition on land and sea, seismic processing, structural and stratigraphic modeling, 3-D seismic exploration, and seismic refraction techniques. Prerequisite(s): completion of geology undergraduate math and physics requirements; MATH 344 or 555; GEOL 324, 544, instructor's consent.

**GEOL 781. Advanced Numerical Geology (3).**

Involves practical implementation of algorithms and computer code. Includes the analysis of multivariate techniques and the development of the computer/algorithm skills needed to handle very large databases. Covers standard statistical approaches to data analysis, treatment of applied linear algebra and matrix theory; the application of linear and nonlinear discriminate analysis, various factor analytic techniques, hard and fuzzy clustering, linear and nonlinear unmixing analysis, and other forms of data modeling. Prerequisite(s): GEOL 681 or equivalent, competence in one or more high level computer languages, MATH 344 or 555, and instructor's consent.

**GEOL 795. Earth and Space Physics (3).**

Cross-listed as PHYS 795. An introduction to the geosciences and astrophysics of the solar system. Topics include the surface, interior and atmospheres of the planets with a comparative planetology approach, and the sun-planet system including solar physics and the effect of the sun on the earth's environment and geologic history. Prerequisite(s): PHYS 313-314, and MATH 242, or EEPS 721, or instructor's consent.

**GEOL 800. Research In Geology (1-3).**

9 Lab hours. Research in special areas of geology: (a) general, (b) mineralogy, (c) petrology, (d) structural, (e) paleontology, (f) economic geology, (g) sedimentation, (i) stratigraphy, (j) geophysics, and (k)

petroleum. Requires a written final report. Prerequisite(s): consent of sponsoring faculty.

**GEOL 810. Advanced Graduate Studies in Geology (1-6).**

Systematic study in a selected topic of professional or applied geology. Course given upon demand. May require field trips. Repeatable for credit when content differs. Prerequisite(s): graduate standing, instructor's consent and two years of professional postgraduate practice in geology.

**GEOL 810AG. Geomorphology and Land Use (3).**

Cross-listed as GEOL 560. Identification of landforms and their genesis, processes producing landforms, the influence of geomorphology in aspects of natural hazards such as landslides, floods, earthquakes and volcanic activity; soil erosion, drainage basin modification, coastal and desert environments, mineral resource exploitation, and their effects on humans; importance of these influences in environmental management and land-use planning. Prerequisite(s): GEOL 111 or GEOL 102 or GEOL/GEOG 201.

**GEOL 810AI. Issues in Marine Environments (2).**

Seminar course examines geologic processes in the marine realm and current environmental issues with tropic marine environments around the world. Assignments and projects in the course give students experience in development and presentation of research, data analysis, and conflict resolution.

**GEOL 810AP. Petroleum Engineering: An Introduction for Geoscientists (3).**

Introduction to the theory and application of petroleum engineering to oil and gas exploration and development. Oriented to students with a geology or geoscience background.

**GEOL 821. Special Studies in Geochemistry (3).**

A systematic study in selected areas of geochemistry. Content differs upon demand to provide in-depth analysis in fields of (a) sedimentary carbonate and silicate geochemistry and mineralogy, (b) organic geochemistry, (c) high pressure and temperature thermodynamics of earth materials, (d) exploration geochemical geochemistry, (e) exogenic geochemical cycling, (f) stable isotope geochemistry. May require some laboratory work. Repeated for credit to cover all six areas listed. Prerequisite(s): GEOL 720 or instructor's consent.

**GEOL 830. Field Studies in Geology (2-6).**

Off-campus, systematic field study in a selected area or region of geologic significance. Course given upon demand. Where appropriate, travel, lodging and board costs are charged. Repeatable for credit when locality and content differ. Prerequisite(s): summer field geology (or equivalent) and instructor's consent.

## GERM - German

**Although a complete graduate program is not currently available in German, the following courses may apply toward a master's degree if approved in advance of enrollment by the student's advisor, the chairperson of the department of modern and classical languages and literatures, and the dean of the Graduate School.**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**GERM 526. Advanced German Grammar and Composition (3).**

Continues the advanced grammar review begun in GERM 300 and focuses on developing German writing skills, including the ability to express oneself with grammatical accuracy and stylistically appropriate vocabulary. Prerequisite(s): GERM 300 or instructor's consent.

**GERM 650. Directed Studies In German (1-3).**

Enrollment in any of the areas listed takes place only upon consultation with the department and agreement with the instructor concerned: (A) Introduction to the Study of German Literature; (B) Survey I: From the Medieval Period Through the Age of Goethe; (C) Survey II: 19th Century to 1945; (D) Contemporary Literature, including the literatures of East and West Germany, 1949-1989; (E) Special Topics in Literature, repeatable once for credit; (F) Special Topics in Language, repeatable once for credit. Prerequisite(s): GERM 300 or instructor's consent.

**HA - Health Administration**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**HA 518. Rural Health Care Leadership (3).**

Designed for the health management or administration student seeking a leadership role in the rural healthcare setting. Focuses upon the key issues and challenges related to healthcare leadership in the rural environment. Covers certain rural related issues including but not limited to recruitment, competency, stakeholder relationships, quality concerns, financial stability, rural partnerships and collaborations, and aging plant/equipment. The student connects with a current rural healthcare executive and through this contact, develops a better understanding of the variation and additional skills needed in healthcare leadership in the rural setting.

**HA 621. Supervisory Management in Health Care Organizations (3).**

Cross-listed as PHS 621. Studies supervisory management concepts and techniques that apply to health care organizations and programs. Emphasizes understanding the health care environment and its various health care settings, identifying issues facing front-line employees, supervisors and mid-level managers, and the development of administrative and leadership skills necessary to successfully lead health care work teams. Identifies, analyzes and solves problems that clinical department heads, supervisors and other health-related mid-management personnel encounter in their work. The principles of effective management techniques — planning, decision making, organizing, budgeting, time management, leadership, direction, delegation, communication, motivation, discipline, performance appraisal, managing change, teamwork, effective meetings, working with unions, quality improvement and career development — are covered. For graduate credit only.

**HA 622. Human Resource Management in Health Care Organizations (3).**

Cross-listed as PHS 622. Intended for clinical health care professionals who will assume responsibility for managing people in health services organizations. Introduces the essential theories, components and issues of human resources management in the health care field. Includes, among many other topics, the study of the effectiveness of the human resources management function, employee recruitment, selection, training, performance appraisal, benefits and compensation, employee relations and other relevant legal requirements affecting employment in the health care sector. Covers issues of contemporary relevance for human health services resource departments such as employee health and safety, employee assistance programs, occupational stress and job burnout, use of the internet in the workplace, violence in the workplace, and work/family issues. Students are required to learn and demonstrate the ability to analyze human resources problems and to find and present sound solutions. Students are expected to learn and demonstrate effective group working skills as they join small groups

and engage in collaboratively solving a number of human resources management problems. For graduate credit only.

**HA 720. Independent Readings (1-3).**

Provides an overview of examination of the methods of using published literature. Supervised study of special topics related to the field of health administration. Student-driven topic, the student works with the instructor to establish an approved research topic. Repeatable up to 3 credit hours. Prerequisite(s): instructor's consent.

**HA 802. Health Law and Ethics (3).**

Introduces the student to legal, regulatory and ethical issues related to managing health care organizations. Provides students with the practical knowledge needed to identify legal issues inherent in health care administration and to understand the legal ramifications of administrative and management decisions. In addition to an overview of laws governing health care institutions, this course explores the ethical dilemmas facing managers and providers in these institutions.

**HA 803. Healthcare Finance (3).**

Overview of health care financing and financial management of health care organizations. Emphasizes the role of financial management in operations as well as principles and concepts related to organizational decision making and accountability. Explores the economic impact of these decisions.

**HA 804. Health Informatics (3).**

Overview of health informatics principles, concepts of health informatics, and how technology can be used in the delivery of health care. Students examine major theories supporting health care informatics, understand its application in supporting decision making, and recognize its importance in providing safe, effective and efficient health care. The role of legal, regulatory, ethical and security issues are discussed as they apply to clinical information technologies.

**HA 806. Issues and Trends in Health Professions (3).**

Familiarizes graduate students with current trends affecting the present and projected health care delivery system. Topics covered cut across the areas of health care management and health policy including personnel, patients, health care technology, organizational structures and facilities, finance, mechanisms and the role of government. Addresses the cultural issues that present in the health care environment and the professionals that work within it. Attempts to focus on specific current and pertinent topics each given year.

**HA 808. Principles of Epidemiology (3).**

Cross-listed as PHS 808. Introductory graduate-level course concerning epidemiological principles and how these form the scientific basis for public health. Introduces students to the science and methodology of disease and risk surveillance in public health. Presents the foundations and structure used to solve medical and environmental health problems in the community with a primary focus on the health status of individual populations and special populations as they relate to health promotion and disease prevention. Includes lecture, group analysis, class guests and discussion.

**HA 810. Strategic Planning and Performance Analytics (3).**

Overview of organizational strategic planning theories and methods. Additionally, to provide services effectively and efficiently, managers need information to make decisions. Course studies the fundamentals of performance measurement and management systems. Measure selection, alignment with strategic plans, reporting processes, accountability and implementation of the performance management processes are included. Case examples focus on health care services organizations.

**HA 812. Health Care Policy and Administration (3).**

Cross-listed as PHS 812. Graduate-level course in the principles of health policy and administration. Considers the elements of strategic thinking at an organizational level as well as strategic implications of health policy and management at the national health care system level. Provides an in-depth look at policy and management issues in the health system from a public health perspective. Topics include health policy, trends in the health care system, and administrative issues.

**HA 814. Health Care Leadership and Operations Management (3).**

Designed for the master's level student seeking a leadership and operations role in the health care setting. Focuses on key competencies necessary for success in this type of role including, but not limited to, leadership execution, working with people, financial operations, strategic planning, budgeting, leadership in quality, building culture, building teams, working with physicians and working with key stakeholders. Case studies and competency focus are the key methodology used. Students have the opportunity to create presentations that simulate those of a health care executive to key stakeholders such as a board of directors of physicians.

**HA 816. MHA Practicum (3).**

Practicum experience culminates the final year of study in the MHA program. Practicum is an applied learning experience where students demonstrate their knowledge of various health administration competencies while gaining practical experience in a health service organization. It also involves completing an applied learning project, which can focus on one or more MHA program learning outcomes to meet a specific need or goal as established by the organization. The practicum requires a minimum of 160 hours on-site with a health services organization, as well as a final presentation and portfolio submission. Practicum hours may be completed in the student's resident state, the final presentation via online conferencing, and portfolio submitted online. Prerequisite(s): instructor's consent.

**HA 833. Health Economics (3).**

Cross-listed as PHS 833. Applies classical economic theories, principles and concepts to traditional U.S. medical care. Considers both the traditional and unique determinants of demand and supply, emphasizing the role of need for care, provider-induced demand, and health insurance. Also considers the legitimate role of government in health care.

**HA 848. Concepts of Quality in Healthcare (3).**

Presents quality management and the leadership of quality initiatives in health services organizations to graduate students. Focuses on a systemic approach looking at various methodologies and the key issue of patient safety. Presents the history and current status of quality management initiatives, as well as the role of quality in organizational strategic management. Students learn the role of quality from theory to application in a broad base of organizational settings.

**HIST - History**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**HIST 500. Your Family in History (3).**

Cross-listed as HIST 225. Bridges the gap between history and genealogy through demonstrations of the kinds of research techniques available to those who are interested in creating a family history. Students demonstrate understanding of these techniques in a family history project.

**HIST 501. American Colonies (3).**

*General education humanities course*. Colonization of the New World emphasizing the British colonists and their development.

**HIST 502. American Revolution and the Early Republic (3).**

*General education humanities course*. Examination of selected phases of the Revolutionary, Confederation and Federal periods.

**HIST 503. The Age of Jefferson and Jackson (3).**

*General education humanities course*. Examines the eras of Thomas Jefferson and Andrew Jackson; that is roughly the period from 1800 to 1850. During that time, the United States experienced tremendous territorial growth, cultural ferment and reform movements, engaged in two major international wars and a number of Indian conflicts, and moved toward the sectional showdown over slavery that culminated in a bloody civil war. Focuses on political, social and military history, as America expanded from the Mississippi River across the North American continent.

**HIST 504. Civil War (3).**

*General education humanities course*. Explores the origins and history of the bloodiest war this nation has ever fought. Students study antebellum America, focusing on the sectional differences between North and South, the institution of slavery, the abolitionist crusade, and the battlefields of the Civil War.

**HIST 505. The United States, 1865 to 1920 (3).**

*General education humanities course*. Examines the political, economic, social and cultural developments during the Gilded Age and Progressive Era. Students read articles, books, and primary documents to trace the experiences of the American nation and people as they transform from a growing nation into a global power with special focus on topics such as Reconstruction, political and economic corruption and reform, industrialization, the development and mechanization of the trans-Mississippi West; the rise of corporations, railroads, cities and the American State; and the challenges of African-Americans, immigrants and women. In the end, students should walk away from the course with a better, more in-depth understanding of the history of, and major historical debates concerning, the Gilded Age and Progressive Era in the United States.

**HIST 508. United States Since 1945 (3).**

*General education humanities course*. In this time period, the United States emerged as a world leader. Although the Cold War became a defining force both at home and abroad, "hot" wars in Korea and Vietnam also produced social, economic and political repercussions in the United States. Course explores major issues and events of the period with a focus on international relations, the Civil Rights Movement, and the growth of the imperial presidency.

**HIST 509. The African-American Historical Experience (3).**

Cross-listed as ETHS 381AD. Provides a panoramic examination of the African-American experience. Chronologically, it covers life in Africa before the trans-Atlantic slave trade to the present day. It focuses on the social, political and economic development of the transplanted Africans in the United States. *Course includes diversity content*. Prerequisite(s): junior, senior or graduate status.

**HIST 510. 20th Century African American History (3).**

Cross-listed as ETHS 381E. The 20th century witnessed a dramatic transformation of the African-American community. As the century began, the vast majority of African-Americans lived in the rural South. At century's end, the vast majority of African-Americans lived in urban areas across the U.S. Besides the demographic relocation of black America, the 20th century also witnessed the Black Freedom Movement (comprised of the Civil Rights and Black Power movements), which dramatically changed the social, economic and political status of blacks. Course examines these and other aspects of the African-American

experience during the pivotal 20th century. *Course includes diversity content.*

**HIST 511. Women in Early America, 1600-1830 (3).**

*General education humanities course.* Cross-listed as WOMS 511. Focuses on women and gender in U.S. history between 1600 and 1830 by examining the lives, experiences, and interactions with social, political and economic systems of women. Students read articles, books and primary documents that examine women's experiences from the first colonial contact with Native Americans to the dawn of the first women's movement in the 19th century. Focuses specifically on colonization, regionalism, the roles of race and ethnicity in the construction of gender, women in religious life, the impact of the American Revolution, Republican Motherhood, and women's contributions to the public sphere and market economy. In the end, students should walk away with an understanding of women in early U.S. history and of the major historical debates concerning women's and gender history. *Course includes diversity content.*

**HIST 512. Women and Reform in America, 1830-Present (3).**

*General education humanities course.* Focuses on women, gender and reform in U.S. history from 1830 to 2000 by examining the lives, experiences, and interactions with social, political and economic systems of women. Students read articles, books and primary documents that examine women's experiences from the emergence of a domestic economy in the 1830s to 21st century popular culture with specific focus on topics such as the Cult of True Womanhood, slavery, Civil War and Reconstruction, Progressivism, suffrage, WWII, postwar feminism, and popular culture. In the end, students should walk away with an understanding of women in early U.S. history and of the major historical debates concerning women's and gender history. *Course includes diversity content.*

**HIST 513. History of United States and the Modern Middle East (3).**

*General education humanities course.* Introduces U.S. relations with the Middle East from the early 20th century to the present. Discusses the fraught redrawing of the map of the Middle East after the collapse of the Ottoman Empire and considers the role of the U.S. in the region, especially focusing on American missionary and business interests in the region before World War II, including the founding of ARAMCO. Examines events in the latter half of the 20th century, including U.S. competition with the Soviets for regional clients and U.S. engagement with regional revolutionary nationalist movements such as those in Israel-Palestine, Iran, Iraq and Libya. Students discuss oil politics, peace processes, approaches to refugees and human rights issues, the rise of Al-Qaeda, attacks of September 11th, and the wars in Afghanistan and Iraq that have become the longest wars in U.S. history. *Course includes diversity content.*

**HIST 514. History of the Modern Middle East (3).**

*General education humanities course.* Examines the emergence of the Modern Middle East from the Ottoman Era to the present. Begins by examining 19th century institutions and considering Middle Eastern political innovations during the late 19th century, especially those rooted in the emergence of nationalism and transforming expectations for the relationship between governments and the people. Focuses upon these two transformations, tracing them through the 20th century, and examines the impact of colonization, World War I, Palestinian and Israeli nationalism, secular ideologies like Arab nationalism and socialism, Nasserism, Islamism and political revolutions in the region. Course features a wide array of source material beyond the texts including articles, literature, film, music and digital archives. *Course includes diversity content.*

**HIST 515. Economic History of the United States (3).**

Cross-listed as ECON 627. Analysis of the basic factors in economic growth. Explores agriculture, trade and commerce, industrial development and the changing role of the government in economic activity. Prerequisite(s): ECON 201 and junior standing.

**HIST 517. United States Constitutional History to 1865 (3).**

*General education humanities course.* The evolution of the American constitutional system from English and Colonial origins through the Civil War.

**HIST 517H. United States Constitutional History to 1865**

**Honors (3).**

*General education humanities course.* The evolution of the American constitutional system from English and Colonial origins through the Civil War.

**HIST 518. United States Constitutional History from 1865 (3).**

*General education humanities course.* American constitutional development from Reconstruction to the present.

**HIST 518H. United States Constitutional History from 1865**

**Honors (3).**

*General education humanities course.* American constitutional development from Reconstruction to the present.

**HIST 519. Introduction to Local and Community History (3).**

Introduces the study of local history and community history. Discusses the various venues through which local and community history takes place including historic preservation, archival administration, museum studies, documentary work and writing for a variety of audiences. Students learn relevant practices as well as issues that face those who study local topics and/or specific communities. Prerequisite(s): graduate standing or instructor's consent.

**HIST 519H. Introduction to Local and Community History**

**Honors (3).**

Introduces the study of local history and community history. Discusses the various venues through which local and community history takes place including historic preservation, archival administration, museum studies, documentary work and writing for a variety of audiences. Students learn relevant practices as well as issues that face those who study local topics and/or specific communities. Prerequisite(s): graduate standing or instructor's consent.

**HIST 522. United States Foreign Relations Since 1898 (3).**

*General education humanities course.* Examines U.S. foreign relations from the wars of 1898 through the Forever Wars of the early 21st century. Examines topics including war in the Philippines, colonialism, World Wars, technology and warfare, the Cold War, humanitarian intervention, U.S. involvement in civil conflicts, oil politics, and drone warfare. Students consider how ideas about race, religion and modernization influenced the rise and exercise of U.S. power abroad. Throughout, the course contextualizes U.S. foreign relations within and their global context. *Course includes diversity content.*

**HIST 523. Special Topics in History (3).**

An umbrella course created to explore a variety of subtopics differentiated by letter (e.g., 523A, 523B). Not all subtopics are offered each semester – see the course schedule for availability. Students enroll in the lettered courses with specific topics in the titles rather than in this root course. These upper division courses in history are taken individually with a given instructor. Each lettered course may be taken only twice for credit toward a history major or master's in history.

**HIST 525. American Military History (3).**

*General education humanities course.* Surveys the American military heritage and its role in shaping the modern United States. Studies the history of warfare from frontier conflicts during the Colonial period

through Desert Storm, focusing on the most significant wars and battles, and the evolution of military institutions and their impact on American social, economic and political traditions.

**HIST 527. African-American Business History (3).**

Cross-listed as ETHS 381G. Surveys the history of African-Americans as entrepreneurs and business people. Drawing from a commercial tradition dating back to pre-trans-Atlantic Africa, business minded blacks overcame a variety of obstacles (such as slavery and Jim Crow segregation) to establish a commercial presence in America. Besides chronicling these efforts, the course also examines why African-American business history has traditionally received minimal attention in both the realms of American business history and African-American history. *Course includes diversity content.*

**HIST 528. History of Wichita (3).**

*General education humanities course.* A history of Wichita, Kansas, 1865-present, emphasizing the lessons of local history for future planning and its importance to an individual citizen's sense of place.

**HIST 530. The American Woman in History (3).**

*General education humanities course.* Cross-listed as WOMS 530. Examines the history, status and changing role of women in American society. *Course includes diversity content.*

**HIST 531. American Environmental History (3).**

*General education humanities course.* Examines the historical, physical, economic, scientific, technological and industrial interactions of the peoples of America with their environment. Emphasizes the period 1800-present. *Course includes diversity content.*

**HIST 535. History of Kansas (3).**

*General education humanities course.* History of the Kansas region from Spanish exploration to the present, emphasizing the period after 1854.

**HIST 536. Survey of American Indian History (3).**

*General education humanities course.* Surveys the history of Native American nations from prehistoric times to the present. Includes the process of European colonization and indigenous responses, the strategies of accommodation, assimilation and resistance, and the resurgence of tribalism in the 20th century. *Course includes diversity content.*

**HIST 541. Modern France (3).**

*General education humanities course.* History of the major trends in French history from Napoleon to DeGaulle emphasizing French attempts to adjust politically, socially, economically and culturally to the changing conditions of modern industrial society.

**HIST 542. Religion in America (3).**

Cross-listed as REL 542. Surveys various religious traditions in American history from Colonial times to the present. Discusses how religions, groups, beliefs and issues have changed over time and how they interact with each other. Includes the different branches of Christianity and Judaism, the study of awakenings and revivals, the stories of prominent religious thinkers and leaders, immigrant religious traditions, the tensions between liberal and traditional religious forms, the prophetic and apocalyptic traditions in American, and the impact of Native American, Asian and African beliefs and practices on the religious landscape.

**HIST 551. The U.S. Army Since the Vietnam War (3).**

Cross-listed as MILS 351. Examines the history of the U.S. Army after the end of U.S. involvement in the Vietnam War. Examines how the U.S. Army was shaped by the Vietnam War and its aftermath, and how that Army responded to the loss of the United States' only near-peer competitor with the collapse of the Soviet Union and the end of the Cold War. Examines the competing strains of thought on the

Army's future through the competing lenses of its 1990s low-intensity conflict military interventions and its struggle to modernize in an era of shrinking budgets. Concludes by examining how these events shaped the U.S. Army's performance in the ongoing wars in Afghanistan, Iraq and Syria.

**HIST 559. Classical Athens (3).**

*General education humanities course.* Focuses on Athens from the sixth to the fourth centuries, from the emergence of the Greek city state to the age of Demosthenes. Examines how Athens founded and maintained the earliest democracy and how individuals such as Socrates, Pericles, Plato and Aristotle fit into their society. Other topics may include warfare, the family, farming, commerce and the law.

**HIST 560. The Hellenistic World and Rise of Rome (3).**

*General education humanities course.* Begins with the conquests of Alexander the Great and provides an overview of the new Greek world which he left behind. Examines changes in Greek culture and society as a result of the spread of Hellenism to the older kingdoms of the New East and India. Includes the rise of the Roman Republic in the context of the Greek world in the first century B.C. with the defeat of Cleopatra, or the last queen of Egypt.

**HIST 562. Roman Republic (3).**

*General education humanities course.* Covers the period of early Roman history from the founding of the city to the first emperor Augustus. Includes coverage of wars and the Roman army, government, society and culture. Emphasizes the end of the republic during the dictatorship of Julius Caesar, the civil wars, and the role of the emperor Augustus.

**HIST 566. Medieval History 500-1200 (3).**

*General education humanities course.* The history of Europe from the fall of the Roman Empire through the Crusades, 500 to 1200.

**HIST 567. Medieval History 1200-1500 (3).**

*General education humanities course.* History of Europe, 1200 to 1500.

**HIST 575. Italian Renaissance (3).**

*General education humanities course.* Italian history from the 14th through the 16th centuries emphasizing cultural achievements.

**HIST 576. The Reformations: From Heresies to Diversity (3).**

*General education humanities course.* Cross-listed as REL 576. Studies the religious changes in the 16th century in political, social and intellectual contexts. Includes the Medieval and Renaissance background of the reformations and the major doctrinal issues that separated Catholic and Protestant groups. Explores how major figures and movements developed their theologies and political strategies from the 15th century through the Catholic Reformation and the Thirty Years' War. Additionally, explores what these reformations mean for us in the 21st century world of religious pluralism.

**HIST 579. Asian Women in Modern History (3).**

Cross-listed as ETHS 579 and WOMS 579. Examines women's historical and contemporary experiences in Asian America and eight major countries in modern Asia. Covers topics on Asian women's activism in relation to nationalism and women's rights. Investigates Asian women's roles and statuses in the family and society and their educational attainment and contributions to the export-oriented industrialization of the Asia-Pacific region. Examines the intra-regional migration of female guest workers among various countries in Asia. Traces the ways in which the changes in immigration laws during the 20th century affect patterns of Asian women's migration to the United States. Introduces writing that integrates Asian women's lives and Asian American experiences into the discourses on ethnicity, national origin, class, gender and sexual orientation in the United States and the Asia-Pacific region. *Course includes diversity content.*

**HIST 581. Europe 1789-1870 (3).**

*General education humanities course.* A focused survey of European social, cultural and political history from 1789-1870. Among the topics covered are the Enlightenment, the French Revolution, industrialization, Romanticism, nationalism, liberalism, socialism, the revolutions of 1848, and the role of women in European society.

**HIST 582. Europe 1871-1945 (3).**

*General education humanities course.* A focused survey of European history between the years 1871-1945. Among the subjects covered are the phenomena of nation building and the imperial project, the rise and growth of European socialism, the emergence of a "mass society," the role of women and minorities, the origins and impact of World War I, inter-war politics and diplomacy, the Nazi Era, and World War II.

**HIST 583. Europe 1945-Present (3).**

A survey of European history, 1945-present.

**HIST 588. History of Early Russia (3).**

*General education humanities course.* Covers the social, political and cultural history of Kievan and Muscovite Russia.

**HIST 589. History of Imperial Russia (3).**

*General education humanities course.* A survey of the political, social and cultural history of Imperial Russia.

**HIST 592. History of Soviet Union (3).**

*General education humanities course.* A survey of Soviet history from the Bolshevik Revolution to the present.

**HIST 593. Former Soviet Union (3).**

*General education humanities course.* Examines contemporary life in the former USSR: historical background, Marxist/Leninist ideology, industrial and agricultural economies, roles played by women, national minorities and dissidents in Soviet society, the press, literature and art, health care, and prospects for the country's future.

**HIST 599AE. 1960s in Europe (3).**

Cross-listed as HIST 399AE. The 1960s evoke considerable debate: were they a period of emancipation? Or were they an era of disorder? This course explores the politics, social movements and cultural phenomenon which emerged during the 1960s in both Eastern and Western Europe. We will pay particular attention to how contemporaries made sense of the changes they were experiencing, and how they strove to translate youthful energy and activism into sustained cultural change. Above all, this course seeks to examine what was the meaning of the 1960s and what were its consequences.

**HIST 599AF. Vietnam Conflict in Film (3).**

Cross-listed as HIST 399AF. A retrospective study of America's longest and most divisive war. The goal of the course is to compare and contrast Hollywood's version of the war, which may be highly romanticized and subjective, with what professional historians and documentaries have said. It is anticipated that the students' knowledge and understanding of the war will be enhanced, and their critical viewing skills sharpened. Students will view a series of film, documentary as well as feature films, that deal with the war. These films will provide an in-depth treatment of several selected topics. Each viewing will be preceded by a lecture providing background and will be followed by class discussion about the merits, accuracy, and interpretation provided in the feature film.

**HIST 599AG. American Law and Film (3).**

American popular culture has demonstrated an enduring fascination with lawyers, the law and the legal system. Course focuses on the portrayal of attorneys and the legal system in films. Uses films as a lens through which to examine the American criminal and civil justice systems, lawyers and legal education, and social and civil rights, while considering how film helps shape public perception of lawyers, creates

viewer expectations regarding law and justice, and may influence the conduct of practicing attorneys and judges.

**HIST 599AI. Nazism and the Third Reich (3).**

Cross-listed as HIST 399Z. Introduces the history of Nazism in Germany during the 1930s and 1940s. Focuses on the political, social and cultural manifestations of Nazism, and the consequences for both German society and the wider world down to the present day.

**HIST 599W. Law in American History (3).**

Examines the role that law plays in American society from the early Colonial settlements through the 20th century. Examines the connection between law and society in four parts: crime and punishment in early America; property, economy and American identity; the 15th Amendment and questions of female citizenship; and the origins of the Civil Rights movement. By looking at laws and court cases in the larger context of American social history, students gain a fuller understanding of the impact and influence that law has on the development of American society.

**HIST 599WH. Law in American History Honors (3).**

Examines the role that law plays in American society from the early Colonial settlements through the 20th century. Examines the connection between law and society in four parts: crime and punishment in early America; property, economy and American identity; the 15th Amendment and questions of female citizenship; and the origins of the Civil Rights movement. By looking at laws and court cases in the larger context of American social history, students gain a fuller understanding of the impact and influence that law has on the development of American society.

**HIST 698. Historiography (3).**

Required of undergraduate history majors. This capstone course engages students in a systematic analysis of major historians and schools of historical thought. Class assignments and discussions encourage students to examine their own ideas about history as an academic discipline. Prerequisite(s): 12 upper-division hours in history or instructor's consent.

**HIST 703. Museum Administration (3).**

Addresses the many facets of museum administration from a specialist's point of view. Covers collecting, management, law and ethics, and resource development. Gives a close view of the operations of American museums. Prerequisite(s): HIST 701 or instructor's consent.

**HIST 725. Advanced Historical Methods (3).**

Reviews basic historical research methods, the general character of field bibliographies and recent interpretations, and the techniques of professional narrative development. Required of graduate degree students during their first year of enrollment. Fulfills the university's professional and scholarly integrity training requirement covering research misconduct, publication practices and responsible authorship, conflict of interest and commitment, ethical issues in data acquisition, management, sharing and ownership. Prerequisite(s): departmental consent.

**HIST 727. Readings In History (1-3).**

Readings in ancient, medieval, modern, European and American field bibliographies. Repeatable for credit. Prerequisite(s): departmental consent.

**HIST 730. Seminar American History (3).**

Repeatable for credit. Prerequisite(s): departmental consent.

**HIST 733. Seminar European History (3).**

Repeatable for credit. Prerequisite(s): departmental consent.

**HIST 750. Workshop in History (2-3).**

Repeatable for credit but does not satisfy requirements for history majors.

**HIST 781. Cooperative Education (1-2).**

Graduate history students participate in internship experiences through the cooperative education program. May substitute for HIST 803. A maximum of 4 credit hours of any combination of HIST 803 and HIST 781 may count toward degree requirements with permission from the program area. Prerequisite(s): instructor's consent.

**HIST 802. Thesis (1-2).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for credit.

**HIST 803. Internship Public History (1-4).**

Public history students practice their skills in summer or semester internships. Type and level of responsibility varies depending on student's interests and work setting. Internship should be in area related to student's MA thesis. Prerequisite(s): HIST 701 and consent of public history faculty.

**HIST 810. Special Topics in History (1-3).**

Repeatable for a total of 6 credit hours.

**HIST 810D. Local Wichita History (3).**

A study of local history and how it is presented to different audiences. Students explore the presentation of local topics, work with a local historical museum, a local archive, and a research project involving the Chisholm Trail.

**HP - Health Professions**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**HP 570. Selected Topics (0.5-4).**

Lecture/discussion; focuses on a discrete area content relevant to the health disciplines. In-depth study of a particular topic or concept, including didactic and current research findings and technological advances relevant to the topic. Repeatable for a total of 6 credit hours with program consent, upper-division status.

**HP 570BA. Badge: Care of Populations - Public Health Science (0.5).**

Introduces students to the tools of public health. Students will explore the history of the U.S. Public Health system and learn how public health practitioners integrate core competencies, essential services, and retrieval of evidence for the goal of improving the health of populations. Graded Bg/NBg.

**HP 570BB. Badge: Care of Populations - Care Leadership & Systems Thinking (0.5).**

Leadership skills consistent with collaborative approaches are essential and need to be part of organizations that interest with the larger public health system. This badge will introduce six key practices of collaborative leadership: Assessing the Environment, Creating Clarity, Sharing Power and Influence, Building Trust, Self Reflection, and Developing People. Course activities will build collaborative and team-oriented leadership capacity among public health professionals as well as diverse state and local community partners. Graded Bg/NBg.

**HP 570BC. Badge: Care of Populations - Financial Planning & Management (0.5).**

Financial Planning and Management principals are key for all organizations. Understanding these elements are crucial for professionals to assist in keeping organizations financially stable. This badge introduces students to various management concepts, as well

as the basic principles of financial planning. Students will be exposed to financial and management tools to learn how they are utilized in all areas of decision making. Graded Bg/NBg.

**HP 570BD. Badge: Care of Populations - Community Dimensions of Practice (0.5).**

Introduces students to the tools of public health. Students will explore the history of the U.S. Public Health system and learn how public health practitioners integrate core competencies, essential services, and retrieval of evidence for the goal of improving the health of populations. Graded Bg/NBg.

**HP 570BE. Badge: Care of Populations - Cultural Competency (0.5).**

Introduces students to the concepts of health and health care disparity and the importance of learning how individuals define, react to, and treat illness and other health risks. Graded Bg/NBg.

**HP 570BF. Badge: Care of Populations - Policy Development & Program Planning (0.5).**

Focuses on developing Policy Development & Program Planning Skills, based on the Core Competencies for Public Health professionals, Tier 1. Policy development is a core public health function. Program planning to implement policies or to support policy development is foundational to understanding public health work. Course activities will help student build awareness, understanding and capacities related health improvement planning, developing program goals and objectives, strategic planning, public health policy, and quality improvement. Graded Bg/NBg.

**HP 740. Badge: Advanced Health Professions (0.5-2).**

An umbrella course created to explore a variety of subtopics differentiated by letter (e.g., 306A, 306B, etc.). Students should enroll in the lettered courses with specific topics in the titles.

**HP 750. Workshop in Health Professions (1-4).**

An opportunity for intensive study of special topics related to health profession practice, education or research.

**HP 800. Research Methods for Evidence-Based Practice (2).**

Online course provides foundational and advanced knowledge and skills regarding research methods to prepare students to develop research studies and locate, appraise and apply health related research to answer clinical questions. Emphasizes principles of evidence-based practice, research ethics, professional and scholarly training, research design and methodologies, framing research questions, and interpretation of basic and advanced statistics necessary to critically evaluate, interpret, and apply health care and health policy research to patient/client care and health care systems. Prerequisite(s): admission into a graduate-level health professions program and instructor's consent.

**HP 801. Interprofessional Evidence-Based Practice (1).**

Interprofessional course uses small group discussion and practical exercises to advance students' skills in evidence-based practice. Students practice integration of clinical expertise and patient/client preferences and values with the best available health care and health policy research to optimize individual health care, public health outcomes and health care systems. Students also have the opportunity to practice and develop skills in working in an interprofessional team. Course assumes advanced knowledge and skills in research methods and evidence-based practice. Prerequisite(s): concurrent or prior enrollment in HP 800 or prior completion of an approved graduate-level research methods course with instructor's consent.

## HPS - Human Performance Studies

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

### HPS 510. Coaching Principles (3).

Provides the skills and knowledge necessary for individuals to successfully coach and officiate both elementary and secondary school interscholastic and intramural athletics. Instruction for coaching and officiating techniques, coaching progression, skill analysis and skill development is provided. Management techniques for interscholastic and intramural athletics are included. A variety of coaching strategies as well as discipline and motivation techniques are discussed. *Course includes diversity content.*

### HPS 541. Seminar in Strength and Conditioning (3).

Helps prepare students for the National Strength and Conditioning Association (NSCA) Certification Commission's Certified Strength and Conditioning Specialist (CSCS) examination and/or the NSCA-Certified Personal Trainer certification examination. Anatomy, biochemistry, biomechanics, endocrinology, nutrition, exercise physiology, psychology and the other sciences that relate to the principles of designing safe and effective training programs are covered. Prerequisite(s): junior classification or graduate student status.

### HPS 590. Independent Study (1-3).

Arranged individual independent study in specialized content areas under the supervision of a faculty member. Prerequisite(s): departmental consent.

### HPS 595. Human Performance Research (3).

Experiential learning course provides opportunities to engage in research activities conducted in the Human Performance Laboratory. Repeatable for a total of 6 credit hours. Prerequisite(s): departmental consent.

### HPS 715. Body Composition and Weight Management (3).

A comprehensive coverage of the theoretical and scientific aspects of body composition assessment and current strategies for effective weight management. The limitations and usefulness of reference and field methods for assessing body composition in research, clinical and health/fitness settings are addressed. The overall intent of this course is not only to provide classroom-based theory regarding body composition assessment, but also hands-on experience and training in applying the different assessment techniques.

### HPS 716. Psychosocial Aspects of Sports Injury, Illness and Rehabilitation (3).

Cross-listed as CLES 750AF. Explores the psychosocial factors related to sport injury and illness and their effects on the rehabilitation process, mostly connected to sports and physical culture. Offers an opportunity to develop critical thinking and applicable skills as students consider the place of injury, illness and pain within the social and psychological worlds of sport. Explores the mechanisms through which psychosocial factors influence sports injury, illness, understanding, prevention, treatment and rehabilitation outcomes.

### HPS 732. Pathophysiology of Cardiovascular Disease (3).

Introduces the pathophysiology of multiple cardiovascular conditions and the developing industry of cardiac rehabilitation. Introduces assessment techniques in electrocardiography (ECG) to assist in the diagnosis of cardiovascular disease. Includes an introduction to ECG leads, rate and rhythm, ECG complexes and intervals, conduction disturbances, arrhythmia, ECG identification of myocardial infarction location and drug effects on an ECG. Prerequisite(s): HPS 490.

### HPS 750L. Motivation (3).

This course is designed to provide the skills and knowledge necessary to properly motivate individuals, groups and teams in a leadership role. Focus is placed on enhancing, creating or maintaining intrinsic motivation through the comprehension of motivation theory, primarily Self-Determination Theory, Achievement Goal Theory and The Progressive Motivation Cycle. In addition, techniques will be developed to apply concepts learned from theory and research to real situations. The knowledge and skills gained from this course will help students excel as leaders in sport, education, business or any chosen career.

### HPS 750P. ACE Group Fitness Instructor Course (1).

Designed to give students the knowledge and understanding necessary to prepare for the ACE group fitness instructor exam. In addition, students become more effective education fitness instructors. Students can take the exam for an additional \$249.

### HPS 750Q. ACE Personal Training Course (1-2).

Gives students the knowledge and understanding necessary to prepare for the ACE personal training certification exam. Students learn a comprehensive system for designing individualized programs based on the unique health and fitness goals of clients. Students can take the exam for an additional \$249.

### HPS 750T. Human Performance Research - PTRM I (3).

Provides students with opportunities to engage in research activities in the Human Performance Laboratory.

### HPS 762. Statistical Concepts in Human Performance Studies (3).

Covers descriptive statistics, elementary probability, distributional properties, one- and two-population mean and variance comparisons, ANOVA, linear regression and correlations. In addition, more advanced principles in parametric and nonparametric statistics are emphasized. Prerequisite(s): junior classification or graduate student status.

### HPS 780. Physical Dimensions of Aging (3).

Cross-listed as AGE 780. Develops an understanding of the complex physiological changes that accompany advancing age and the effects of physical activity on these factors. Also develops an appreciation for how functional consequences affect mental and social dimensions of life. Attention is given to sensory, motor, cognitive and psychological changes. Emphasizes factors associated with the preparation, implementation and evaluation of research projects involving older adult populations.

### HPS 781. Cooperative Education (1-3).

Provides the graduate student with a field placement which integrates theory with a planned and supervised professional experience designed to complement and enhance the student's academic program. Individualized programs must be formulated in consultation with appropriate graduate faculty. The plan of study for a graduate degree-bound student must be filed before approval of enrollment for cooperative education graduate credit. Repeatable for credit. A maximum of 3 hours (for nonthesis option) or 6 hours (for thesis option) may count toward the graduate degree.

### HPS 790. Applied Exercise Physiology (3).

Focuses on the applied aspect of exercise physiology. Includes the areas of environmental influences on performance; optimizing performance through training, nutrition and ergogenic aids; training and performance of the adolescent athlete and the differences in performance and training between genders. Prerequisite(s): HPS 490 or 830.

### HPS 795. Physiology of Athletic Performance (3).

Explores the physiological responses involved with various athletic performances, including sports requiring endurance, speed and power. Includes such areas of physiological study as metabolic energy systems, cardiovascular and skeletal muscle adaptation, muscle fiber type

differentiation and responses to extreme environmental conditions. Discovers parameters for performance and establishes guidelines for training at high levels of performance.

**HPS 797. Exercise in Health and Disease (3).**

Introduction to the physiology of disease and the effects of short- and long-term exercise on specific conditions. Understanding the guidelines for exercise testing and prescription in high risk populations. Prerequisite(s): HPS 490.

**HPS 800. Recent Literature in the Profession (3).**

Survey and critical analysis of research and other pertinent materials in the field.

**HPS 815. Fitness Assessment/Exercise Recommendations (3).**

Introduces techniques appropriate for screening, health appraisal and fitness assessment as required for prescribing exercise programs for individuals without disease or with controlled disease. Requires out-of-class laboratory experiences. Prerequisite(s): HPS 490 or equivalent and graduate standing.

**HPS 830. Advanced Physiology and Anatomy of Exercise (3).**

In-depth study of the physiological and anatomical basis of exercise and training. Includes respiratory dynamics, cardiovascular function, energy metabolism, regulation during rest, steady state and exhaustive physical activity, identification of joint movements, and the recognition of muscles and nerves that are involved in movement. Emphasizes immediate and long-term adaptation to exercise and training. Prerequisite(s): HPS 490.

**HPS 857. Internship in Exercise Science/Wellness (6).**

Internship in selected area of specialization within the exercise science program. Students spend the equivalent of full-time employment in an appropriate agency for one full semester. Prerequisite(s): departmental consent.

**HPS 860. Research Methods in the Profession (3).**

Examination of research methodology as related to topics in health, PE, sports studies and exercise science/wellness. Includes review and critical evaluation of the literature, research design and statistical processes, methodology, data collection techniques, computer-based analysis of data and thesis/report writing. Fulfills the university's professional and scholarly integrity training requirement covering research misconduct, publication practices and responsible authorship, conflict of interest and commitment, ethical issues in data acquisition, management, sharing and ownership. Students design and complete a mini research project.

**HPS 875. Thesis Research (1-2).**

Development of a research problem and proposal with the direction of a graduate faculty member. Repeatable for credit, but total credit hours counted toward degree requirements must not exceed 2. Prerequisite(s): admission to graduate school in good standing, HPS 860, departmental consent.

**HPS 876. Thesis (1-2).**

Repeatable for credit, but total credit hours counted toward degree requirements must not exceed 2. Students must be enrolled in this course during the semester in which all requirements for the thesis are met. Prerequisite(s): HPS 875 and consent of the student's committee chair.

**HPS 890. Special Topics (1-4).**

Directed reading and research under supervision of a graduate instructor. Prerequisite(s): departmental consent.

**HPS 895. Applied Research (1-4).**

Provides opportunity for the student to develop, in collaboration with a departmental faculty member, objectives and protocol for independent work.

## HRM - Human Resource Management

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**HRM 665. Employment Law (3).**

Legal issues involved in hiring and employment, including lawful hiring practices, discrimination and harassment law, performance reviews, termination, labor laws, labor relations and other legal issues. Prerequisite(s): junior standing.

**HRM 666. Human Resource Staffing (3).**

Analysis of all phases of the selection process as implemented in private and public sector organizations. Includes an analysis of the impact of federal and state anti-discrimination legislation on selection practices as well as human resource planning, recruiting, job analysis, and selection techniques including testing and interviewing. Validation of selection techniques is covered. Prerequisite(s): HRM 466, junior standing. Business students should have advanced standing.

**HRM 668. Compensation (3).**

Approaches to compensation processes in organizations. Discusses job evaluation techniques, wage level and wage structure determination, individual performance analysis, individual wage rate decisions, incentive plans and benefits. Considers the legal constraints on compensation practices. Prerequisite(s): HRM 466, junior standing. Business students should have advanced standing.

**HRM 669. Training and Development (3).**

Analyzes the training and development function as applied in private and public sector organizations. Considers the role of training and development in today's business environment, needs assessment, learning objectives, learning theory, instructional methods and techniques, and evaluation of training effectiveness. Prerequisite(s): HRM 466, junior standing. Business students should have advanced standing.

**HRM 690. Seminar in Selected Topics (1-5).**

Repeatable for credit with departmental consent. Prerequisite(s): HRM 466 or instructor's consent, junior standing, advanced standing.

**HRM 750. Workshop in Human Resources (1-4).**

Prerequisite(s): junior standing.

**HRM 803. Human Resource Analytics (3).**

Introduces HR and workforce data management. Examines different types of workforce metrics managers can glean from the organization's performance management systems. Surveys different statistical techniques to analyze data and familiarizes students with common mistakes managers make regarding data analytics. Analyzes organizational datasets with commonly available statistical software to help with HR and workforce decision making. Uses commonly available data sources within organizations, different statistical techniques to analyze data, and common pitfalls.

**HRM 866. Selection (3).**

Focuses on the acquisition and deployment of human assets by organizations in the context of strategic human resource management. Surveys analytical methods to examine and forecast labor market trends to develop a legally compliant, staffing strategy. Topics include hiring, firing, promoting and outsourcing.

**HRM 867. Seminar in Human Resource Management (3).**

An in-depth study and analysis of several critical and/or major current problems in human resources and a review of significant literature. Prerequisite(s): MBA 801 or equivalent.

**HRM 868. Rewards (3).**

Examines the total rewards strategy and how to tailor individual and group compensation and benefits to maximize employee performance. Critically evaluates strengths and weaknesses of compensation and benefits in organizations using research evidence. Assesses best practices in implementing compensation and benefits changes to the organization.

**HRM 869. Talent Development (3).**

Assessing and developing the organization's human assets via training and development. Covers both micro issues and macro issues, including the learning organization.

**HRM 885. Strategic Human Resource Management (3).**

Introduces the strategic view of HR. Teaches students to adopt a systems perspective and attend to multiple stakeholders. Emphasizes the importance of understanding the many forces that shape a firm's approach to managing human resources and the positioning of the HR function as a strategic partner. Focuses on the intersection of HRM, business policy and competitive strategy.

**HRM 890. Seminar Special Topics (1-3).**

Repeatable with departmental consent.

**HRM 890C. Rewards (3).**

Advanced approaches to compensation and benefits processes in organizations. Discusses job evaluation techniques, wage level and wage structure determination, individual performance analysis, individual wage rate decisions, incentive plans and benefits. Considers the legal constraints on compensation practices.

**HRM 890D. Talent Development (3).**

Advanced approaches to the training and development function as applied in private and public sector organizations. Considers the role of training and development in today's business environment, needs assessment, learning objectives, learning theory, instructional methods and techniques, and evaluation of training effectiveness.

**HRM 891. Directed Studies (1-5).**

Prerequisite(s): departmental consent.

**HS - Health Sciences**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**HS 550. Kidney Function and Disease for Health Professions: Glomerular Filtration and Renal Blood Flow (1).**

First in a series of four courses developed for students preparing for health professional programs in a variety of settings (e.g., nursing, physician assistant, physical therapy, medical degrees), or advanced degrees in the sciences (e.g., biology, exercise science) who have a desire to expand their background in kidney physiology before entering these fields. Prerequisite(s): BIOL 223 or HS 290.

**HS 551. Kidney Function and Disease for Health Professionals: Tumular Processing of Glomerular Filtrate (1).**

Second in a series of four courses developed for students preparing for health professional programs in a variety of settings (e.g., nursing, physician assistant, physical therapy, medical degrees), or advanced degrees in the sciences (e.g., biology, exercise science) who have a desire to expand their background in kidney physiology before entering these fields. Prerequisite(s): HS 550.

**HS 552. Kidney Function and Disease for Health Professionals: Regulation of Extracellular Fluid Osmolarity (1).**

Third in a series of four courses developed for students preparing for health professional programs in a variety of settings (e.g., nursing, physician assistant, physical therapy, medical degrees), or advanced degrees in the sciences (e.g., biology, exercise science) who have a desire to expand their background in kidney physiology before entering these fields. Prerequisite(s): HS 551.

**HS 553. Kidney Function & Disease for Health Professionals: Potassium, Kidney Diseases & Diuretics (1).**

Fourth in a series of four courses developed for students preparing for health professional programs in a variety of settings (e.g., nursing, physician assistant, physical therapy, medical degrees), or advanced degrees in the sciences (e.g., biology, exercise science) who have a desire to expand their background in kidney physiology before entering these fields. Prerequisite(s): HS 552.

**HS 560. Cranial Nerves I: Embryology (2).**

First in a series of two courses developed for students who have a desire to expand their background on the cranial nerves before entering a health professional field (e.g., nursing, physician assistant, physical therapy, medical degrees), or advanced degree in the sciences (e.g., biology, exercise science). Prerequisite(s): BIOL 223 or HS 290.

**HS 561. Cranial Nerves II: Anatomy & Physiology (2).**

Second in a series of two courses developed for students who have a desire to expand their background on the cranial nerves before entering a health professional field (e.g., nursing, physician assistant, physical therapy, medical degrees), or advanced degree in the sciences (e.g., biology, exercise science). Prerequisite(s): BIOL 223 or HS 290.

**HS 570. Neuroscience for Health Professionals: Peripheral Nervous System (1).**

First in a series of four courses developed for students preparing for health professions programs in a variety of settings (e.g., nursing, physician assistant, physical therapy, medical degrees), or advanced degrees in the sciences (e.g., biology, exercise science, biochemistry) who have a desire to expand their background in neuroscience before entering these fields. Prerequisite(s): instructor's consent.

**HS 571. Neuroscience for Health Professionals: Ascending and Descending Pathways (1).**

Second in a series of four courses developed for students preparing for health professions programs in a variety of settings (e.g., nursing, physician assistant, physical therapy, medical degrees), or advanced degrees in the sciences (e.g., biology, exercise science, biochemistry) who have a desire to expand their background in neuroscience before entering these fields. Prerequisite(s): HS 570 or instructor's consent.

**HS 572. Neuroscience for Health Professionals: Brainstem and Cerebellum (1).**

Third in a series of four courses developed for students preparing for health professions programs in a variety of settings (e.g., nursing, physician assistant, physical therapy, medical degrees), or advanced degrees in the sciences (e.g., biology, exercise science, biochemistry) who have a desire to expand their background in neuroscience before entering these fields. Prerequisite(s): HS 570, 571.

**HS 573. Neuroscience for Health Professionals: Forebrain (1).**

Fourth in a series of four courses developed for students preparing for health professions programs in a variety of settings (e.g., nursing, physician assistant, physical therapy, medical degrees), or advanced degrees in the sciences (e.g., biology, exercise science, biochemistry) who have a desire to expand their background in neuroscience before entering these fields. Prerequisite(s): HS 570, 571, 572.

**HS 600. Advanced Clinical Anatomy (5).**

Structured to present the human body using a regional approach. Emphasis on learning gross anatomy with a clinical mindset. In addition to lectures, the students use prosected cadavers, skeletal specimens, radiographic films and anatomical models. Designed for those students who desire to pursue a degree within health professions and who would like to deepen their knowledge of human anatomy and its application to clinical scenarios. Prerequisite(s): BIOL 223 or HS 290.

**HS 700. Gross Anatomy (6).**

3 Classroom hours; 9 Lab hours. Study of the structure of the human body emphasizing integration of anatomical information with human functional abilities. Prerequisite(s): four semesters of biological sciences and instructor's consent.

**HS 710. Applied Clinical Pharmacology (3).**

Discusses clinical applications of selected drug classes commonly prescribed in the primary care setting as well as the follow-up management of common chronic diseases. Discusses pharmacological managements as to pharmacokinetics, dosages, mechanisms of action (at molecular and systemic levels), side effects, drug interactions, contraindications, therapeutic use and expected outcomes. Emphasizes the practical application of this knowledge in various patient populations of all ages as well as rational drug selection and monitoring. Methodology includes lecture presentations, group discussions, clinical case studies, assessment of recent literature, homework assignments, quizzes and exams. Prerequisite(s): admission into graduate nursing program.

**HS 711. Pharmacological Management of Acute and Chronic Diseases (3).**

Discusses the clinical application of specific categories of drugs used in the treatment of several common acute and chronic diseases. Presents pharmacokinetics, mechanisms of action, dosages, side effects and monitoring parameters of medications as they are used in these diseases and in various patient populations. Facilitates clinical application of this knowledge through case studies, class discussions and reviews of the latest medical literature. Prerequisite(s): HS 710 and admission into graduate nursing program.

**IB - International Business**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**IB 561. International Economics and Business (3).**

Cross-listed as ECON 672. Surveys the economic foundations of international trade, finance and investment. Includes foreign exchange markets, regional integration, trade theories and instruments, U.S. trade policies and treaties, multinational companies, immigration, as well as differences in cultural, political and economic systems. Includes current events. *Course includes diversity content*. Prerequisite(s): ECON 201, 202, junior standing.

**IB 600. International Management (3).**

Overview of international business including strategy and organizational behavior. Equips students to manage effectively in an increasingly diverse global marketplace. Covers international strategy formulation, cross-border alliances, control and coordination systems in multinational organizations, social responsibility and ethics, culture and communication in global management, international negotiations, and management of global human resources. *Course includes diversity content*. Prerequisite(s): IB 333.

**IB 601. International Marketing (3).**

Cross-listed as MKT 601. Problems and procedures of marketing in foreign countries. Includes the effects of foreign cultures and marketing

systems on the design of marketing programs. *Course includes diversity content*. Prerequisite(s): MKT 300 with a minimum grade of C+ (2.300), junior standing, advanced standing.

**IB 625. International Financial Management (3).**

Cross-listed as ECON 674 and FIN 625. Studies the international financial and monetary system, emphasizing currency markets. Also examines market instruments and techniques, including synthetic and derivative securities and their application to management of currency risk in international trade and finance. Prerequisite(s): FIN 340 with a grade of C or better, junior standing.

**IB 690. Special Topics in International Business (3).**

Covers emerging topics within the field of international business. Prerequisite(s): completion of or concurrent enrollment in all required IB courses, junior standing, advanced standing.

**IB 690L. Study Abroad in France (3).**

Establishes a foundation of international business fundamentals. Discusses the steps, principles and methods associated with international business.

**IB 836. International Business and Competitiveness (3).**

An introduction to international business administration with particular attention to the development of multinational business strategies in light of the diverse economic, political, social and cultural dimensions of the environments that exist in both developed and developing areas of the world.

**IB 890. Seminar in Special Topics (1-3).**

Repeatable for credit with departmental consent.

**IB 891. Directed Studies in IB (1-6).**

Prerequisite(s): departmental consent.

**IB 892. Internship in IB (1-3).**

Prerequisite(s): departmental consent.

**ID - Innovative Design**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**ID 500. Design Thinking Process (1).**

Today organizations of all sizes are looking to be more innovative, deliver unique, high-quality user experiences and even disrupt their industry. This course looks at techniques and approaches to innovation design past and present, but focuses on the process of design thinking. Design thinking takes a human-centered approach to problem solving and can be applied to nearly any situation including new ways of looking at products and services, consumer markets, user wants and needs, team functions and building, company alignment, strategy, and more. Course purpose is to help students learn, understand and appreciate the process of design thinking. Focuses on techniques for developing empathy and understanding, effectively defining a problem, exploring ideas, rapid prototyping and testing. Students observe and collaborate with interdisciplinary teams to discover user insights, improve user experiences, innovate new products and services, create team alignment, and overall problem solving. Intended for students with diverse interests and nontechnical backgrounds.

**ID 500H. Design Thinking Process Honors (1).**

Today organizations of all sizes are looking to be more innovative, deliver unique, high-quality user experiences and even disrupt their industry. This course looks at techniques and approaches to innovation design past and present, but focuses on the process of design thinking. Design thinking takes a human-centered approach to problem solving and can be applied to nearly any situation including new ways of looking at products and services, consumer markets, user wants and

needs, team functions and building, company alignment, strategy, and more. Course purpose is to help students learn, understand and appreciate the process of design thinking. Focuses on techniques for developing empathy and understanding, effectively defining a problem, exploring ideas, rapid prototyping and testing. Students observe and collaborate with interdisciplinary teams to discover user insights, improve user experiences, innovate new products and services, create team alignment, and overall problem solving. Intended for students with diverse interests and nontechnical backgrounds.

**ID 501. Design Thinking Facilitation (1).**

Looks at various techniques and approaches to facilitating teams in the design-thinking process, understanding stakeholders, dealing with a variety of personality types, and handling group dynamics and conflicts. Intended for students with diverse interests and nontechnical backgrounds.

**ID 501H. Design Thinking Facilitation Honors (1).**

Looks at various techniques and approaches to facilitating teams in the design-thinking process, understanding stakeholders, dealing with a variety of personality types, and handling group dynamics and conflicts. Intended for students with diverse interests and nontechnical backgrounds.

**ID 502. Design Thinking Implementation: Design Challenges Level I (2).**

Using design-thinking processes, students are assigned to teams to tackle one or more design challenges provided by a Fortune 100 company to innovate new ideas and solutions. (Design challenges vary by semester.) These challenges are more involved than those in ID 501. Each team works through the challenge, develops ideas, prototypes, evaluates and redesigns as needed to reach a final solution which is presented by the team. Intended for students with diverse interests and nontechnical backgrounds.

**ID 503. Introduction to Branding (1).**

Looks at companies that have developed successful brands and what can be learned from them. Topics include: what branding really is, how branding can impact sales short-term and long term, who really owns the brand, and how companies manage their brands. Intended for students with diverse interests and nontechnical backgrounds.

**ID 504. Building a Brand Strategy (1).**

Looks at how to position companies for long-term success by developing a well thought out brand strategy. Using the tools learned in ID 503, students work on developing a strategy for a new startup company. Students collaborate in teams, but ultimately turn in an individual company brand strategy. Intended for students with diverse interests and nontechnical backgrounds.

**ID 505. Design Thinking Implementation: Design Challenges Level II (2).**

Using design-thinking processes, students are assigned to teams to tackle one or more design challenges provided by a Fortune 100 company to innovate new ideas and solutions. (Design challenges vary by semester.) These challenges are more involved than those in ID 502. Each team works through the challenge, develops ideas, prototypes, evaluates and redesigns as needed to reach a final solution which is presented by the team. Intended for students with diverse interests and nontechnical backgrounds.

**ID 506. Leadership Development for Innovation (3).**

Examines what makes or breaks a great leader, not just in companies, but in life. Studies the six "C's" of leadership: character, charisma, commitment, competence, communication and courage, and how each one can enhance or take away from leadership ability. Intended for students with diverse interests and nontechnical backgrounds.

**ID 507. Tech Talent Development (1).**

Prepares students for integration into the rapidly growing technology industry using applied problem solving exercises within the area of technology development. Students are exposed to a diverse array of real-world problems faced by technology startups and established companies, and taught how to facilitate successful outcomes while adapting to the culture. Focuses on team-building exercises, estimating solutions effort and cost, resolving conflicts, developing interpersonal skills, and identifying roles within teams. Intended for students with interests in the technology industry.

**ID 508. Design Sprints (1).**

As a method to quickly solve big problems and test new ideas, design sprints are a very efficient ideation and problem solving process. Attendees learn the collaborative sprint process and how to use it to develop new products and services, and to solve complex problems. Course is ideal for students who intend to work in the tech, product or service development industries, are UX designers, are looking to grow their collaboration and team leadership skills, or intend to run their own business.

**ID 509. Applied Sustainability in Innovation (3).**

Students participate in thoughtful discussion on sustainability, adoption of sustainable practices and policies, and employ hands-on analysis of the long-term sustainability of innovative solutions to today's wicked problems.

**ID 510. Introduction to Adaptive Leadership (3).**

Introduces the concept of adaptive leadership, a practical leadership framework that helps individuals and organizations adapt and thrive in challenging environments in order to make progress on the difficult challenges facing society, organizations and individuals.

**ID 550. Hacking for Defense: Solving National Security Issues with the Lean LaunchPad Method (3).**

Hacking for Defense™ (H4D), a course designed for all undergraduate and graduate students from all disciplines and programs, takes an entrepreneurial, interdisciplinary approach to America's hardest national security challenges. Students are part of an interdisciplinary team to research, design and propose a solution for a real national security challenge presented by one of the course's sponsors. The complexity of these challenges demands a transformative effort that requires multi-faceted teams. The course needs and wants policy professionals, makers and mechanical engineers, systems engineers, computer scientists, biomedical and public health professionals, entrepreneurs, physicists, scientists, and everyone between to be part of this unique effort. H4D is a modern renaissance class – it covers policy, economics, technology, national security and whatever else is needed to learn to solve the problem sponsor's pain points. People are at the forefront of changing the paradigm of problem-solving and solution development for the U.S. Government. The course is demanding; students present at every class, work closely with their team and receive relentlessly direct feedback. Problem sponsors, mentors, military liaisons, corporate partners, investors and journalists may be in the room, but students are solving real problems for real customers in real-time.

**ID 555. Innovating for Social Justice (3).**

Achieving sustainable globalization requires a rejuvenation of entrepreneurial and innovation based on a better understanding of the impact of social context. Course is intended for students with diverse interests and nontechnical backgrounds.

**ID 705. Seminar in Applied Innovation (1-6).**

Focuses on a sample of innovation design and/or ventures problems through theory and application. Content changes as new problems attain prominence locally, nationally and internationally. Content

is typically driven by project challenges that often revolve around prototyping and overcoming barriers. Example of course content might be solving a materials issue for a wearable technology, circuitry of an instrument, coding for a mobile application, website development, and can be as broad as problems linked to innovation in third-world industrialization. Intellectual property and fund raising may be discussed in group settings and may include guest speakers and/or visits to local companies.

**ID 705A. Practical Prototyping (1).**

Exploration of concepts employed in realizing practical prototypes including form versus function, user/product interface, failure, and quality. Use of at-hand processes and equipment may be explored.

**ID 705B. Kan-Fab; Modeling and Fabrication (1).**

Develops the concepts, skills and methods needed to design, prototype and fabricate physical "things". Presents relevant techniques in sketching, 2D and 3D modeling and fabrication along with basic electronics and circuit design. Fabrication techniques may include laser-cutting, 3D printing, soldering, water jet, etc.

**ID 705C. Gadgets (1).**

Introduction to electronic product design elements. Expose students to interesting and surprising design features inside electronic device products. Reverse engineer an existing product, assess limitation of size and power, and undertake a mechanical design project.

**ID 705D. Agile Product Development (2).**

Learn modern agile methodologies for product development and team management. Topics covered include Scrum framework, Kanban and lean practices.

**ID 705E. Product Development Process (1-3).**

Discusses how to launch viable, market-ready products. Practice the use of an outcome bases product roadmap.

**ID 705F. Optimizing Design (1-3).**

Designed for the nonprofessional graphic designer looking to explore methods and concepts to take ideas and designs to the next step independently.

**ID 705G. Start Up (1-3).**

Combines business strategy with design thinking. Discusses methods of addressing risk and capitalizing on opportunity to increase value. Innovative approaches to present revenue models and sales channels are explored.

**ID 705I. Introduction to Blockchain 'Intro to Crypto-Currency' (1-3).**

Course for the nontechnical audience. Introduces the key concepts behind blockchain technology, digital currency, hyperledger and other use cases.

**ID 710. Service Design Thinking (2).**

Teaches students how to tailor design-thinking processes to achieve intended outcomes and objectives associated with services, systems and processes using empathy maps, journey maps, storyboards, prioritization grids, and next steps. Additionally, students learn how vision, goals, activities, tasks and steps can help users complete an intended outcome in a way that supports the overall mission of the organization. Course is for anyone who works with or develops services, systems or processes including innovators, engineers, game designers, web designers, operations management, efficiency management and service-related industries such as restaurants, hotels and event centers.

**ID 720. Sustainable Teams and Organizations (3).**

Assess and discuss the long-term sustainability of various philosophies and techniques used in the management of people and teams. This course looks at the impacts of these approaches in individual, team

and organizational settings. Students learn the value of creating psychological safety in a team environment, its impact on transparency and performance, and techniques for facilitating constructive conflict to attain continuous improvement in a complex product development environment – with people. Students also explore the impacts to team performance made by human resource policies, traditional project management techniques, large organizational structures, and compliance and risk mitigation.

**ID 721. Pitch to Presentation (2).**

Pitching ideas, products and strategies is a vital part of business, yet it is a skill that most people simply have had to learn through experience. This class speeds up that process by addressing the fears that hold people back from making a presentation and provides ways to deal with those fears. Additionally, this course focuses on all the key elements of an effective pitch presentation including how to craft a pitch story, the importance of quality visuals, the impact of words and images, and how to develop a style as a presenter by applying voice, tone and body language. This course covers: the seven deadly fears of public speaking; what someone is selling vs what people are buying; effective communication with words, tone and body language; the strategic elements of a pitch; the art of storytelling for impact; presentation development; and delivering a presentation in person vs online.

**ID 752. Product, Service, and Process Prototyping (3).**

Provides an overview of prototyping concepts with the specific intent of help innovation design degree students identify various methods of successfully demonstrating the potential of their ideas. Intended for students with diverse interests and nontechnical backgrounds.

**ID 753. Design: Intent vs Impact (3).**

Explores the ethics behind companies with the least impact vs the companies who create the most negative impact. Addresses why "being less bad" is still not good enough, and tackles the 4R's — reduce, recycle, reuse and regulations. Students discuss and learn about ethically resourced materials, sustainability, carbon footprints, natural resources, outsource responsibility, product lifecycles, social responsibility, cutting waste, government concerns, respecting diversity and what potential new issues can arise from artificial intelligence. Course is for anyone planning to launch or run a company, innovate new products and services, looking to grow their leadership skills, or lead a team for a company that produces products and services. Intended for students with diverse interests and technical or nontechnical backgrounds. Completion of this course fulfills the Graduate School's professional/scholarly/integrity training requirement.

**ID 840. Innovation in Practice (1-6).**

Independent study course for students undertaking the Master of Innovation Design or other related programs. Built around experiential enrichment related to the broad topic of innovation. Topics such as intellectual property, branding, pitching, wire-framing, prototyping and funding are discussed in a group setting and may include guest speakers and/or visits to local companies. Repeatable for credit, but only 6 credit hours may count toward plan of study.

**ID 841. Project (1-6).**

Independent study course for students undertaking the project development/creativity option for completion of the Master of Innovation Design. Project is a substantive piece of creative work involving primary and/or secondary development, which serves to demonstrate mastery over the discourse, methods and content of at least one academic, creative or professional field. Requires students to synthesize knowledge and skills acquired over the course of the graduate career. Project must be designed and completed under the supervision of a graduate faculty supervisor and at the supervisor's

discretion, may be reviewed by additional faculty advisors. Repeatable for credit, but only 6 credit hours may count toward plan of study.

#### **ID 842. Thesis (1-6).**

Independent study course for innovation design degree students undertaking the research and writing of a master's thesis. A thesis is a substantive piece of scholarship or creative work involving primary and/or secondary research, which serves to demonstrate mastery over the discourse, methods and content of at least one academic, creative or professional field. Requires students to synthesize knowledge and skills acquired over the course of the graduate career. Thesis projects must be designed and completed under the supervision of a graduate faculty thesis supervisor and, at the supervisor's discretion, may be reviewed by additional faculty advisors. Repeatable for credit. Limit of 6 credit hours can be applied to the plan of study.

## **IME - Industrial and Manufacturing Engineering**

**Please note that for all graduate programs in ISME, some IME courses may require programming skills as a prerequisite, and some IME courses may require Linear Algebra or Calculus III as a prerequisite.**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

#### **IME 524. Descriptive Analytics (3).**

A study of confidence interval, regression analysis, analysis of variance, correlation analysis and design of experiments emphasizing applications to engineering. For undergraduate students only. Prerequisite(s): IME 254.

#### **IME 549. Industrial Ergonomics (3).**

A systematic approach to the optimization of the human-task-environment system. Includes work space design, manual materials handling, work related musculoskeletal disorders and environmental factors. Emphasizes applications in industry. Prerequisite(s): IME 254 or departmental consent.

#### **IME 550. Operations Research I (3).**

Covers deterministic models and methods in operations research including linear programming, integer programming, and network optimization to aid in the analysis and solution of complex, large-scale decision problems. Prerequisite(s): MATH 511.

#### **IME 553. Production Systems (3).**

Quantitative techniques used in the analysis and control of production systems. Includes forecasting, inventory models, operation planning and scheduling. Prerequisite(s): IME 254. Pre- or corequisite(s): IME 255.

#### **IME 554. Statistical Quality Control (3).**

A study of the measurement and control of product quality using statistical methods. Includes acceptance sampling, statistical process control and total quality management. Pre- or corequisite(s): IME 254.

#### **IME 556. Information Systems (3).**

Provides a basic understanding of information systems in a modern enterprise, including database design, information technology and ethics using hands-on activities and directed classroom discussion. For ISME undergraduates students only. Prerequisite(s): CS 211 or MIS 310 or MATH 451.

#### **IME 557. Safety Engineering (3).**

Environmental aspects of accident prevention, industrial compensation and safety legislation. Fundamental concepts of occupational health and hygiene. Prerequisite(s): IME 254.

#### **IME 558. Manufacturing Methods and Materials II (4).**

3 Classroom hours; 2 Lab hours. Covers theoretical and practical aspects of manufacturing processes, including material properties and behavior as influenced by the manufacturing process. In-depth study of such manufacturing processes as casting heat treatment, bulk forming, sheet metal forming, metal cutting, nontraditional machining and process monitoring through measurement of manufacturing process variables. Also includes laboratory experience and plant tours. Prerequisite(s): IME 258, ME 250. Corequisite(s): IME 558L.

#### **IME 561. Applied Control Systems (3).**

Covers the fundamentals of control systems and their applications. Topics include theory of control systems, Laplace transforms, Z transforms, stability analysis, state space methods, PID control, tuning, relay logic controllers, programmable logic controllers, supervisory control and data acquisition, and case studies. Prerequisite(s): MATH 555 with a C or better grade or instructor's consent.

#### **IME 563. Facilities Planning and Design (3).**

Quantitative and qualitative approaches to problems in facilities planning and design, emphasizing activity relationships, space requirements, materials handling and storage, and plant layout. Quantitative and qualitative approaches to selection of material handling devices and design of storage systems, and introduction to concepts of supply chain. Prerequisite(s): IME 452, 550, 553.

#### **IME 565. Systems Simulation (3).**

The design of simulation models and techniques for use in designing and evaluating discrete systems, including manufacturing systems too complex to be solved analytically. Emphasizes general purpose computer simulation languages. Prerequisite(s): computer programming competency. For ISME undergraduate students only. Pre- or corequisite(s): IME 553, 524.

#### **IME 590. Industrial Engineering Design I (3).**

An industry-based team design project using industrial engineering and manufacturing engineering principles; performed under faculty supervision. May not be counted toward graduate credit. Prerequisite(s): IME 553; must be within two semesters of graduation or departmental consent.

#### **IME 625. Product Performance Evaluation using CAE (3).**

Covers the application of analysis and simulation methods and tools to evaluate product designs for strength, life and robustness. Includes a lab experience and a design project aimed at developing proficiency in virtual product evaluation. Prerequisite(s): AE 333 and IME 425.

#### **IME 650. Operations Research II (3).**

The second of a two-course sequence on models and solution approaches commonly used in the analysis of decision-making problems. Familiarizes students with nonlinear deterministic as well as probabilistic models in operations research and their applications. In particular, upon completion of this course, students develop an understanding of how to model and analyze systems that show nonlinear and probabilistic behavior. Moreover, students learn how to use state-of-the-art optimization solvers. Topics include nonlinear programming, decision making under uncertainty, game theory, Markov chains, queuing theory and dynamic programming. Prerequisite(s): IME 550 or instructor's consent.

#### **IME 664. Engineering Management (3).**

Introduction to the design and control of technologically-based projects. Considers both the theoretical and practical aspects of systems models, organizational development, project planning and control, resource allocation, team development and personal skill assessment. Prerequisite(s): IME 255, (IME 254 or ENGT 354), all with a C or better.

**IME 676. Aircraft Manufacturing and Assembly (3).**

Covers key aspects of assembly design for aircraft structures. First module covers design of jigs and fixtures to locate parts and machine features to tolerance, and the effect of part and tool stiffness on the tolerances. Second module covers gage design and gage studies, and geometric dimensioning and tolerancing. Third module covers assembly planning and best practices for aircraft assembly. Laboratory experiments and case studies are used to understand issues related to aircraft assembly. For ISME undergraduate students only. Prerequisite(s): IME 258.

**IME 690. Industrial Engineering Design II (3).**

Continuation of the design project initiated in IME 590 or the performance of a second industrial engineering design project; an industry-based team design project using industrial and manufacturing engineering principles; performed under faculty supervision. May not be counted toward graduate credit. Prerequisite(s): IME 590 and departmental consent.

**IME 724. Statistical Methods for Engineers (3).**

For graduate students majoring in engineering. Students study and model real-life engineering problems and draw reliable conclusions through applications of probability theory and statistical techniques. Not available for undergraduate credit. Prerequisite(s): MATH 243.

**IME 734. Introduction to Data Mining and Analytics (3).**

Introduces the theory and basic analysis methods for analyzing existing datasets. Topics include: data preprocessing, linear regression, logistic regression, classification (using linear regression, logistic regression, decision trees, rule-based classifiers, instance-based classifiers, Bayesian classifiers, support vector machine), association analysis and cluster analysis. Focuses on the data mining tasks that each method addresses, the assumptions of each method, the inputs needed, the outputs, interpretation of results, and evaluation of the quality of the analysis. Includes a term project based on the research/application interests of the students. The software package R is used to illustrate the implementation of the analysis. Prerequisite(s): IME 254 and MATH 511 or instructor's consent.

**IME 740. Analysis of Decision Processes (3).**

Decision analysis as it applies to capital equipment selection and replacement, process design and policy development. Explicit consideration of risk, uncertainty and multiple attributes is developed and applied using modern computer-aided analysis techniques. Prerequisite(s): IME 254, 255.

**IME 749. Ergonomic Assessment Methods (3).**

Covers current and commonly used risk and exposure assessment methods used for musculoskeletal disorders in the workplace. Students develop an understanding and working knowledge of how to evaluate and control the risk of work-related musculoskeletal disorders in the design of workplaces. Critical assessments and discussions of risk and exposure assessment techniques are performed relative to the strengths and weaknesses of each technique as well as the evidence for risk control and validity of the various methods. Prerequisite(s): IME 549 or instructor's consent.

**IME 753. Advanced Linear Programming (3).**

Linear and integer programming formulations, simplex method, geometry of the simplex method, sensitivity and duality, interior point methods. Prerequisite(s): IME 550 or instructor's consent.

**IME 754. Reliability and Maintainability Engineering (3).**

Studies problems of quantifying, assessing and verifying reliability. Presents various factors that determine the capabilities of components emphasizing practical applications. Examples and problems cover a broad range of engineering fields. Prerequisite(s): IME 524 or 724.

**IME 755. Design of Experiments (3).**

Application of analysis of variance and experimental design for engineering studies. Includes general design methodology, single-factor designs, randomized blocks, factorial designs, fractional replication and confounding. Prerequisite(s): IME 524 or 724.

**IME 758. Analysis of Manufacturing Processes (3).**

Introduces students to plasticity and builds upon their knowledge of mechanics and heat transfer in order to analyze various manufacturing processes. Numerical techniques (mainly finite element analysis) as well as theoretical methods are introduced and applied to analysis of processes such as open and closed die forging, superplastic forming, machining, grinding, laser welding, etc. The effect of friction, material properties and process parameters on the mechanics of the processes and process outputs is the main focus of study. Prerequisite(s): AE 333.

**IME 759. Ergonomic Interventions (3).**

Provides an understanding and working knowledge of how to evaluate and control the risk of musculoskeletal disorders in the design of workplaces and processes. Scientific aspects of intervention design and effectiveness assessment are discussed, including an assessment of the strengths and weaknesses of the intervention research literature. Prerequisite(s): IME 549 or instructor's consent.

**IME 761. Robot Programming and Applications (3).**

Covers broad interdisciplinary topics in industrial robotics. Topics include path planning and programming of robot manipulators, collaborative robots and mobile robots, as well as robot applications in conjunction with the industrial internet of things (IIoT), industrial automation, and smart manufacturing. Both theoretical and practical approaches are considered for smooth transitions from theories to applications. Practical applications are facilitated by lab activities that use robot simulation software. Prerequisite(s): IME 561 with a C or better grade or instructor's consent.

**IME 762. Smart Manufacturing (3).**

Introduces smart manufacturing that employs adaptive interoperable systems, sensor fusion, digital information technology and skilled technical workforce. The topics cover artificial intelligence, statistical optimization, digital transformation, smart manufacturing enablers and case studies. Prerequisite(s): MATH 555 with a "C" or better grade (2.000 on a 4.000 scale) and basic programming skills or instructor's consent.

**IME 764. Systems Engineering and Analysis (3).**

Presentation of system design process from the identification of a need through conceptual design, preliminary design, detail design and development, and system test and evaluation. Studies operational feasibility, reliability, maintainability, supportability and economic feasibility. Prerequisite(s): IME 254, 255.

**IME 765. Modeling and Analysis of Manufacturing Systems (3).**

Introduces students to the basic concepts underlying modeling and analysis of manufacturing systems to support operations and performance evaluation. Students learn to select the appropriate analytical methods (e.g., optimization, stochastic modeling) to solve specific problems by illustrating models and algorithms frequently used in analyzing common manufacturing configurations. Prerequisite(s): basic knowledge of deterministic operations research, probability theory and stochastic modeling expected (IME 550 and IME 650).

**IME 767. Lean Manufacturing (3).**

Introduces lean concepts as applied to the manufacturing environment. Deals with the concepts of value, value stream, flow, pull and perfection. Includes waste identification, value stream mapping, visual controls and lean metrics. Prerequisite(s): IME 553.

**IME 775. Computer Integrated Manufacturing (3).**

A study of the concepts, components and technologies of CIM systems; enterprise modeling for CIM, local area networks, CAD/CAM interfaces, information flow for CIM, shop floor control and justification of CIM systems. Prerequisite(s): knowledge of a programming language, IME 558.

**IME 777. IME Colloquium (0).**

Presentations and discussions of industrial engineering problems, research methods and case analyses for graduate students. Repeatable for credit.

**IME 780. Topics in Industrial Engineering (3).**

New or special courses are presented under this listing. Repeatable for credit when subject matter warrants.

**IME 780AK. Advanced Industrial Information Systems (3).**

Utilize database and analytical software to develop advanced industrial information systems. Topics include: advance Microsoft Access for end-users, Logic-based systems, Analytics in Microsoft Excel, data modeling, and data analytics.

**IME 780AL. Energy Analytics & Management (3).**

Covers topics on energy auditing, rate structures, economic evaluation techniques, analysis of opportunities in energy systems including but not limited to lighting, compressed air, process heating, steam, and other process-based energy systems. Also covers multiple software programs used by energy auditing professionals. Prerequisite(s): EE 282 or instructor's approval.

**IME 780AM. Advanced Cyber-Physical Systems (3).**

A cyber-physical system is a set of interconnected digital computing devices that interact with physical world through sensors and actuators in a feedback control loop. The course outlines the basic principles of design, modeling, and analysis of cyber-physical systems with the use of mathematical abstractions, control theories, data communication, and distributed algorithms. The course also explains some of the Industry-4.0 technologies, such as cognitive robotics and Industrial Internet of Things (IIoT), with some hands-on lab activities.

**IME 780AN. Big Data Analytics in Engineering (3).**

Provides a graduate-level introduction to methods in data science and big data analytics with engineering applications. Specifically, examines some widely used statistical methods and machine learning tools for big data (data with high volume, velocity and variety). A variety of up-to-date industrial engineering topics are covered as application examples. Prerequisite(s): basic engineering statistics and programming skills.

**IME 780AP. Neural Networks and Machine Learning (3).**

Introduces the theory and practical applications of artificial neural networks and machine learning. Covers several network paradigms, emphasizing the use of neural networks as a solution tool for industrial problems which require pattern recognition, predictive and interpretive models, pattern classification, optimization and clustering. Covers machine learning. Presents examples and discusses them from a variety of areas including quality detection, process monitoring, robotics, simulation metamodeling, diagnostic models, combinatorial optimization and machine vision. For students from a variety of disciplines.

**IME 781. Cooperative Education (1-8).**

A work-related placement with a supervised professional experience to complement and enhance the student's academic program. Intended for master's level or doctoral students in IME. Repeatable for credit. May not be used to satisfy degree requirements. Prerequisite(s): departmental consent, graduate GPA of 3.000 or above.

**IME 781P. Cooperative Education (1).**

Introduces the student to professional practice by working in industry in an academically-related job and provides a planned professional experience designed to complement and enhance the student's academic program. Individualized programs must be formulated in consultation with, and approved by, appropriate faculty sponsors and cooperative education coordinators. Students must enroll concurrently in a minimum of 6 hours of coursework including this course in addition to a minimum of 20 hours per week at their co-op assignment. Graded Cr/NCr unless student has received permission before enrolling for course to be used as an elective. Repeatable for credit. For graduate students.

**IME 783. Supply Chain Management (3).**

Quantitative and qualitative techniques used in the design and management of the supply chain. Includes distribution management, multi-plant coordination, optimal design of the logistics network, adequate safety stock levels and the risk pooling concept, and integrating decision support systems (DDS) in the management of the supply chain. Prerequisite(s): IME 553 or DS 350 or DS 850 or instructor's consent.

**IME 788. Rapid Prototyping and 3D Printing (3).**

Provides engineering students with knowledge about all available rapid prototyping and rapid tooling techniques. Topics include fundamentals of rapid prototyping and additive manufacturing, reverse engineering, CAD modeling, and current 3D printing technologies. Additional concepts important to product development in aviation industry and medical applications are addressed and exercised during term projects. Prerequisite(s): IME 775 or instructor's consent.

**IME 835. Applied Forecasting Methods (3).**

A study of forecasting methods, including smoothing techniques, time series analysis, and Box-Jenkins models. Prerequisite(s): IME 724 or instructor's consent.

**IME 851. Stochastic Modeling and Analysis (3).**

Discusses stochastic processes and their application to modeling and analysis of systems that involve uncertainty in engineering and management sciences. Topics include review of probability concepts and random variables, discrete-time Markov chains, Poisson processes, continuous-time Markov processes, renewal theory, and basic queueing models. Prerequisite(s): IME 550 or instructor's consent.

**IME 854. Quality Engineering (3).**

A broad view of quality tools and their integration into a comprehensive quality management and improvement system. Covers the theory and approaches of the major quality leaders such as Deming, Juran and Crosby. Explores off-line and online quality engineering techniques, including cost of quality, the seven old and seven new tools, Quality Function Deployment, and statistical process control methods. Explores design of engineering experiments, including Taguchi's methods. Prerequisite(s): IME 554 or instructor's consent.

**IME 864. Risk Analysis (3).**

Provides a set of methods that have been widely used to evaluate and void the risk of technological systems and devices in engineering applications. The methods introduced are multi-disciplinary in terms of the scope of the methodology and the concepts that are being applied in many industries. Students are expected to have an engineering background and the capability of using statistics and operations research tools. Prerequisite(s): IME 724 or 754 or instructor's consent.

**IME 865. Modeling and Analysis of Discrete Systems (3).**

Covers analytical and experimental techniques for the modeling and analysis of discrete systems with a focus on discrete event simulation of terminating and nonterminating systems. Course material includes some discussion of Markov Chains and Queuing Theory as they pertain to systems simulation. Systems applications come from the

manufacturing and service sectors. Students investigate issues through readings, lectures and hands-on projects. Prerequisite(s): IME 553, 724, or instructor's consent.

**IME 869. Bayesian Statistics and Uncertainty Quantification (3).** Studies Bayesian probability theory, model-based design of engineering systems, different uncertainty sources and their quantification, sensitivity analysis, dynamic systems, real-time control, diagnostics and prognostics. Designed for graduate students majoring in engineering. Prerequisite(s): IME 754 or instructor's consent.

**IME 872. Applied Learning Project in Industrial, Systems, and Manufacturing Engineering (1).** Incorporates an industry-based project conducted under the supervision of departmental graduate faculty. Satisfies the applied learning requirement for MS-level students in the department. Requires a written report and an oral presentation on the project. Prerequisite(s): instructor's consent.

**IME 874. MSIE Graduate Seminar (1).** Seminar course performed under faculty supervision, related to a topic of research interest to both the faculty and the student. Repeatable for credit. Prerequisite(s): faculty consent.

**IME 876. Thesis (1-6).** Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for credit. Prerequisite(s): thesis advisor's consent.

**IME 878. Master's Directed Project (1-3).** A project conducted under the supervision of an academic advisor for the directed project option. Requires a written report and an oral presentation on the project. Prerequisite(s): consent of academic advisor.

**IME 880. Topics in Industrial Engineering (3).** New or special courses are presented under this listing on sufficient demand. Repeatable for credit when subject matter warrants.

**IME 880Y. Forecasting and Analytics (3).** Covers topics on time series regression models, forecasting and smoothing, exploratory data analytics, predictive analytics and modeling, and ARIMA models. Students will use R program to model predictive analytics problems. Prerequisite(s): IME 524 and IME 724 or instructor's approval.

**IME 883. Supply Chain Analytics (3).** Uses operations research and analytics to provide state-of-the-art mathematical models, concepts and solution methods important in the design, control, operation and management of global supply chains by emphasizing a quantitative analytical approach. Prerequisite(s): IME 550 and IME 553; or instructor's consent.

**IME 890. Independent Study in Industrial Engineering (1-3).** Analysis, research and solution of a selected problem. Prerequisite(s): instructor's consent.

**IME 930. Multiple Criteria Decision Making (3).** An extensive treatment of techniques for decision making where the multiple criteria nature of the problem must be recognized explicitly. Prerequisite(s): IME 550.

**IME 960. Advanced Selected Topics (3).** New or special courses on advanced topics presented under this listing on sufficient demand. Prerequisite(s): instructor's consent.

**IME 960F. Statistical Process Control (3).** Studies the measurement and control of product quality using statistical methods. Includes total quality management, statistical process control and acceptance sampling. Prerequisite(s): IME 254 or IME 724.

**IME 960G. Exoskeletons and Ergonomics (3).** Exoskeletons are mechanical devices worn by people to enhance their capabilities and are used for military personnel, rehabilitation and in the manufacturing sector. This course explores current use of exoskeletons in industry, exposing students to the multiple uses, the current research on exoskeletons, as well as develop laboratory studies to assess enhancement of human capabilities with the use of exoskeletons. Prerequisite(s): IME 549 or instructor's consent.

**IME 960I. Rubber Processing for 3D Printing (3).** A study of rubber and rubber processing. Includes industrial applications of rubber, vulcanization and devocalization of rubber, environmental and economic impact of recycling rubber, and potentials for using rubber in 3D printing. Prerequisite(s): IME 780V and ME 665, or instructor's consent.

**IME 976. PhD Dissertation (1-12).** Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for credit. Prerequisite(s): admission to doctoral aspirant status.

**IME 990. Advanced Independent Study (1-3).** Arranged individual, independent study in specialized content areas. Repeatable for credit toward the PhD degree. Prerequisite(s): advanced standing and departmental consent.

## LASI - LAS Interdisciplinary

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**LASI 501. Great Plains Experience (1-3).** Offered during fall and spring semesters as a 1-hour field experience and in the summer session as a 3-hour field experience. For students in the Great Plains Studies certificate program. Visit museums, anthropological and archeological sites, nature preserves, and other places of significance in Great Plains Studies. Prerequisite(s): LASI 201 or 800 or instructor's consent.

**LASI 750. Workshop in LASI (1-3).** Meets identified needs of specific audiences.

**LASI 800. Research Goals/Strategies (3).** Introduces the methodology and practice of interdisciplinary research. Emphasizes the integration of methods native to the humanities, social sciences and natural sciences. Develops skills required for the writing of research papers and theses. Required of all students in the Master of Arts in liberal studies (MALS) program during the first 12 hours of coursework.

**LASI 875. Thesis (1-6).** For students who are finishing the Master of Arts in liberal studies. The student writing a thesis is enrolled in this course until the thesis is completed and all thesis requirements have been satisfied. Prerequisite(s): consent of student's degree committee chairperson and instructor.

**LASI 885. Terminal Project (1-6).** For students who are near the end of their MALS program and involved in a terminal project. The terminal project may have many aspects such as field work, practicum, curriculum development or some other individualized activity. The project must be approved by the student's advisory committee and the MALS graduate coordinator prior to beginning work on any terminal activity, whether thesis or project. While the terminal project allows for more creative flexibility than the thesis option, students and their terminal project committee should be aware that the standards of quality and research expectations are

equivalent. The student involved in a project must be enrolled in this course until the project is completed and all project requirements have been satisfied.

## LATN - Latin

**Although a complete graduate program is not currently available in Latin, the following courses may apply toward a master's degree.**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

### LATN 526. Advanced Grammar and Composition (3).

Intensive study of the grammar and style of classical Latin prose of the Golden Age, especially of Cicero and Caesar. Required capstone course for the MCLL major with specialization in Latin.

## LING - Linguistics

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

### LING 505A. Advanced French Phonetics (2).

2 Classroom hours; 2 Lab hours. Cross-listed as FREN 505. Includes articulatory phonetics, phonemics, sound/symbol correspondences, dialectal and stylistic variations. Required for future French teachers. Prerequisite(s): any 200-level FREN course or departmental consent.

### LING 505B. Russian Phonology (2).

Cross-listed as RUSS 505. Corrective pronunciation and auditory perception for non-native speakers of Russian. Includes articulatory phonetics, phonemics and morphophonemics, as well as the study and production of intonation contours (intonatsionnye konstruktсии). Prerequisite(s): any 200-level course or instructor's consent.

### LING 505C. Spanish Phonetics (3).

Cross-listed as SPAN 505. Includes articulatory phonetics, phonemics, sound/symbol correspondences, dialectal and stylistic variations. Required for future Spanish teachers. Prerequisite(s): any 200-level SPAN course or departmental consent.

### LING 506. Acoustic and Perceptual Phonetics (3).

Cross-listed as CSD 506. Studies the physical patterns (acoustic) of speech sounds and the importance of these acoustic patterns to speech recognition (perception). Focuses on segmental phonemes (vowels and consonants) and on suprasegmental characteristics such as stress and intonation. Introduces different types of speech analysis techniques and discusses how they may be used to study the acoustic patterns of speech sounds. Studies how different aspects of the speech signal relate to listener perception. Note: The CSD 506 or 506H sections must be taken in order for this course to count toward the CSD undergraduate major. Prerequisite(s): CSD 301.

### LING 520. ASL: Nonverbal Communication (3).

Cross-listed as CSD 520. Nonverbal way of communication which forms an integral base for communication in American Sign Language. Emphasizes the use and understanding of facial expression, gestures, pantomime and body language. Role play and acting out are required as part of this class. Pre- or corequisite(s): CSD 370 or instructor's consent.

### LING 546. Spanish Language Learning (3).

Cross-listed as SPAN 546. Introduces language learning from an applied linguistics perspective: the processes of first and second language acquisition, elements of Spanish grammar that are often difficult for English speakers, and social aspects of language learning. Appropriate for advanced undergraduate students and graduate students.

Taught in Spanish. *Course includes diversity content*. Prerequisite(s): SPAN 526 or departmental consent.

### LING 547. Spanish in the U.S. (3).

Cross-listed as SPAN 547. Explores the structural and social aspects of Spanish in the United States. Examines the history and social context of the use of Spanish in the U.S. as well as dialectical and contact phenomena in U.S. Spanish. Also covers Spanish in education, in the media and in other aspects of public life in the U.S. Appropriate for advanced undergraduate students and graduate students. Taught in Spanish. *Course includes diversity content*. Prerequisite(s): SPAN 526 or departmental consent.

### LING 590. Special Studies in Linguistics (1-3).

Topic selected and announced by individual instructor. Credit is assigned to Group A, B or C depending on content. Repeatable for credit when content varies.

### LING 590M. Languages and Language Attitudes in the U.S. (3).

Cross-listed as ENGL 580AF. Community-based research seminar examines the social, economic and educational ramifications of various languages and attitudes to these languages in the U.S. Topics include the linguistic intersection of race, gender and social class; comparisons of standardized and Standard English to other dialects such as African American Vernacular English (AAVE); and the role of linguistics in the formation of language policy. Course takes a hands-on approach and students are involved in research design and data analysis. Students also have opportunities to participate in service learning, in organizations such as International Rescue Committee and AmeriCorps.

### LING 595. Directed Readings (1-3).

Credit assigned to Group A, B or C depending on content. Repeatable for credit.

### LING 635. Introduction to Romance Linguistics (3).

Cross-listed as FREN 635 and SPAN 635. Provides a contrastive examination of the phonology, morphology and syntax of the major contemporary Romance languages (French, Spanish, Italian, Portuguese, Catalan and Romanian). Introduces students to the sound and writing system and basic grammar of Latin, and contrasts the phonological and grammatical systems of the contemporary Romance languages (French and Spanish in particular) with those of Latin. It compares specific features of the modern Romance languages synchronically (i.e., apart from Latin) as well. Students are advised to have a solid grounding in at least one Romance language (preferably French or Spanish) and a familiarity with at least one other (French, Spanish, Latin, Italian or Portuguese). Prerequisite(s): departmental or instructor's consent.

### LING 651. Language and Culture (3).

Cross-listed as ANTH 651 and MCLL 651. An introduction to the major themes in the interactions of language and society, and language and culture, including ethnography of communication, linguistic relativity and determinism; types of language contact, the linguistic repertoire, and cross-cultural discourse analysis. Content may vary with instructor. Prerequisite(s): 3 hours of linguistics or MCLL 351 or 6 hours of anthropology.

### LING 663. Languages and Language Attitudes in USA (3).

Cross-listed as ENGL 663. In this community-based research seminar, students examine the social, economic and educational ramifications of various languages and attitudes to these languages in the USA. Covers the linguistic intersection of race, gender and social class; compares standardized and Standard English to other dialects such as African American Vernacular English; and the role of linguistics in forming language policy. Takes a hands-on approach and involves students in research design and data analysis. *Course includes diversity content*.

**LING 664. Quantitative Methods for Literary and Linguistic Studies (3).**

Cross-listed as ENGL 664. Introduces the basic concepts of data analysis and statistical computing as used in literary and linguistic studies. Students get a better understanding of applying quantitative reasoning, visualization and data analysis to several problems in a wide range of fields in the humanities, such as linguistics, literature, and by extension, psychology and cognitive science. Students also consider practical applications of quantitative analysis in the humanities, including bibliometric and attribution study. *Course includes diversity content.*

**LING 665. History of the English Language (3).**

This course offers an in-depth historical study of the English language by tracing the history of how the language has changed across time. We will consider Old, Middle, Modern, American English, as well as newer World Englishes. We will address the nature and mechanisms of language change over time and the social, political, and other historical conditions related to such changes. The course will focus on the particular phonological, morphological, syntactic, lexical, and semantic changes that have happened diachronically, while touching upon the literature and culture of the different historical periods. Prerequisite(s): ENGL/LING 315.

**LING 667. English Syntax (3).**

Cross-listed as ENGL 667. Studies the basic principles of English syntax, covering the major facts of English sentence construction and relating them to linguistic theory. Prerequisite(s): ENGL 315/LING 315 or equivalent, or departmental consent.

**LING 668. Field Methods of Linguistics (3).**

Cross-listed as ENGL 668. Students learn how to collect and analyze data from a language unknown to them by interacting with a native speaker – course language consultant. Students gain some familiarity with the phonetics, phonology, morphology and syntax of the language, while developing techniques for studying an unfamiliar language more generally and for managing the data collected. *Course includes diversity content.* Repeatable three times for a total of 9 credit hours. Prerequisite(s): ENGL 315/LING 315.

**LING 672. Dialectology (3).**

Cross-listed as ENGL 672. Introduces the study of language variety, emphasizing regional and social dialect in America and methods of studying it. May be repeated for credit when content varies. Prerequisite(s): LING 315/ENGL 315 or departmental consent.

**LING 720. Seminar in Old English (3).**

Cross-listed as ENGL 720. Advanced course in Old English language and literature. Studies the Old English language in enough detail to enable the reading of some prose and poetry, including parts of Beowulf and the elegiac poems in the original. Some literature, including all of Beowulf, is read in translation. Particular attention is given to close reading and interpretation of the text, and to important literary and cultural features of the period and its Norse heritage. Repeatable once for credit with a change of content and departmental consent.

**LING 740. Graduate Studies in Linguistics (3).**

Selected topics in theories of language and methods of linguistic study. Repeatable for credit with departmental consent.

**MART - Media Arts**

**Although there is no graduate degree in media arts, the following courses are available for graduate credit.**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**MART 540. Advanced Editing and Mastering (3).**

Explores editing, recording and production techniques at an advanced level. Students gain experience with industry standard digital audio workstations. Prerequisite(s): MART 110.

**MART 570. Electronic Music Production (2).**

Gain a working knowledge of composition and production of music made by computers. Covers techniques used in the electronic music genre ranging from EDM to music concrete.

**MART 571. Live Sound Design (3).**

Explores the acoustical, musical, and technical aspects of the live performance, in order to present the best possible sound to the audience.

**MART 575. Seminar in Music Technology (3).**

Covers developing trends in music technology and production.

**MATH - Mathematics**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**MATH 501. Elementary Mathematics (5).**

A study of topics necessary to an understanding of the elementary school curriculum, such as set theory, real numbers and geometry. Not for major or minor credit. Prerequisite(s): elementary education major and MATH 111 or equivalent with a grade point of 2.000 or better, or departmental consent.

**MATH 502. Mathematics for Middle School Teachers (5).**

A study of the mathematical knowledge which forms the theoretical foundations of, the applications of, and extensions of middle school mathematics. This capstone course serves to reinforce mathematics skills learned in prerequisite courses and assists students in recognizing the unifying principles within their mathematical experiences. Prerequisite(s): MATH 111, 121, 123, 144, 501, and STAT 370 or equivalent with a grade point of 2.000 or better in each.

**MATH 511. Linear Algebra (3).**

An elementary study of linear algebra, including an examination of linear transformations and matrices over finite dimensional spaces. Prerequisite(s): MATH 243 with a grade point of 2.000 or better.

**MATH 513. Fundamental Concepts of Algebra (3).**

Defines group, ring and field, and studies their properties. Prerequisite(s): MATH 415 and 511 with a grade point of 2.000 or better, or departmental consent.

**MATH 525. Elementary Topology (3).**

Studies topological spaces, open and closed sets, bases for topology, continuous mappings, homeomorphisms, connectedness and compactness, Hausdorff and other spaces, with special emphasis on metric spaces. Prerequisite(s): MATH 415 with a grade point of 2.000 or better.

**MATH 530. Applied Combinatorics (3).**

Basic counting principles, occupancy problems, generating functions, recurrence relations, principles of inclusion and exclusion, the pigeonhole principle, Fibonacci sequences and elements of graph theory. Prerequisite(s): MATH 344 with a grade point of 2.000 or better.

**MATH 531. Introduction to the History of Mathematics (3).**

*General education math and natural sciences course.* Studies the development of mathematics from antiquity to modern times. Solves problems using the methods of the historical period in which they arose. Requires mathematical skills. Prerequisite(s): MATH 511 and two additional courses at the 500 level or above, with a grade point of 2.000 or better in each.

**MATH 545. Integration Techniques and Applications (3).**

Studies the basic integration techniques used in applied mathematics. Includes the standard vector calculus treatment of line and surface integrals, Green's Theorem, Stokes's Theorem, and the Divergence Theorem. Also includes the study of improper integrals with application to special functions. Prerequisite(s): MATH 344 with a grade point of 2.000 or better.

**MATH 547. Advanced Calculus I (3).**

Covers the calculus of Euclidean space including the standard results concerning functions, sequences and limits. Prerequisite(s): MATH 344 and 415 with a grade point of 2.000 or better in each.

**MATH 548. Introduction to Complex Variables (3).**

Study of complex numbers, analytic functions, differentiation and integration of complex functions, line integrals, power series, residues and poles, and conformal mapping with applications. Prerequisite(s): MATH 344 with a grade point of 2.000 or better.

**MATH 551. Numerical Methods (3).**

Approximating roots of equations, interpolation and approximation, numerical differentiation and integration, and the numerical solution of first order ordinary differential equations. Some computer use. Prerequisite(s): MATH 344 and 451 with a grade point of 2.000 or better, or departmental consent.

**MATH 553. Mathematical Models (3).**

Covers case studies from the fields of engineering technology and the natural and social sciences. Emphasizes the mathematics involved. Each student completes a term project which is the solution of a particular problem approved by the instructor. Prerequisite(s): Math 344 with a grade point of 2.000 or better, or departmental consent.

**MATH 555. Differential Equations I (3).**

A study of first order equations including separation of variables and exact equations, second order equations including the general theory of initial value problems, constant coefficients, undetermined coefficients, variation of parameters and special methods of solution using power series and the Laplace transform methods. A standard course in differential equation for students in the sciences and engineering. Prerequisite(s): MATH 243 with a grade point of 2.000 or better, or departmental consent.

**MATH 555H. Differential Equations I Honors (3).**

A study of first order equations including separation of variables and exact equations, second order equations including the general theory of initial value problems, constant coefficients, undetermined coefficients, variation of parameters and special methods of solution using power series and the Laplace transform methods. A standard course in differential equation for students in the sciences and engineering. Prerequisite(s): MATH 243 with a grade point of 2.000 or better, or departmental consent.

**MATH 580. Selected Topics In Math (1-3).**

Topic chosen from topics not otherwise represented in the curriculum. May be repeated up to a maximum of 6 hours credit with departmental consent. Prerequisite(s): departmental consent.

**MATH 615. Elementary Number Theory (3).**

Studies properties of the integers by elementary means. Prerequisite(s): MATH 344 with a grade point of 2.000 or better, or departmental consent.

**MATH 621. Elementary Geometry (3).**

Studies Euclidean geometry from an advanced point of view. Prerequisite(s): MATH 344 with a grade point of 2.000 or better, or departmental consent.

**MATH 640. Advanced Calculus II (3).**

A continuation of MATH 547. Prerequisite(s): MATH 511 and 547 with a grade point of 2.000 or better in each.

**MATH 655. Differential Equations II (3).**

A continuation of MATH 555 (but with more emphasis on theoretical issues) that covers higher order differential equations, systems of first order equations (including the basics of linear algebra), some numerical methods, and stability and behavior of solutions for large times. Prerequisite(s): MATH 555 with a grade point of 2.000 or better, or departmental consent.

**MATH 657. Optimization Theory (3).**

Introduces selected topics in linear and nonlinear optimization. Develops the revised simplex method along with a careful treatment of duality. Then extends the theory to solve parametric, integer and mixed integer linear programs. Prerequisite(s): MATH 511 with a grade point of 2.000 or better.

**MATH 713. Abstract Algebra I (3).**

Treats the standard basic topics of abstract algebra. Prerequisite(s): MATH 513 with a grade point of 2.000 or better, or departmental consent.

**MATH 720. Modern Geometry (3).**

Examines the fundamental concepts of geometry. Prerequisite(s): MATH 513 with a grade point of 2.000 or better, or departmental consent.

**MATH 725. Topology I (3).**

Studies the results of point set and algebraic topology. Prerequisite(s): MATH 547 with a grade point of 2.000 or better, or departmental consent.

**MATH 743. Real Analysis I (3).**

Includes a study of the foundations of analysis and the fundamental results of the subject. Prerequisite(s): MATH 640 with a grade point of 2.000 or better, or departmental consent.

**MATH 745. Complex Analysis I (3).**

Studies the theory of analytic functions. Prerequisite(s): MATH 640 with a grade point of 2.000 or better, or departmental consent.

**MATH 746. Introduction to Data Analytics (3).**

Covers basic mathematical techniques for analyzing data sets. Uses object oriented programming, like Python or R, to show how to organize, visualize and analyze large data. For students to be successful in this course, basic programming knowledge is needed prior to enrolling. Prerequisite(s): MATH 511, 571, or instructor's consent.

**MATH 750Y. Smooth Manifolds (3).**

Knowledge of differentiable manifolds has become very important in a large number of areas of mathematics and of its applications. In fact, much of advanced calculus and analysis is based on the study of differentiable manifolds. For example, topics such as line and surface integrals, divergence and curl of vector fields and Stokes' and Green's theorems are most naturally described using manifold theory. Course gives a careful introduction to differentiable manifolds, illustrating each new definition and theorem with the study of spheres, tori, real and complex projective spaces, and matrix groups. Talks about tangent spaces, vector fields, differential forms and integral curves. Concludes with Stokes' theorem on manifolds.

**MATH 750Z. Data Analytics' (3).**

Covers basic mathematical techniques for analyzing data sets. The course will use Python to show how to organize, visualize, and analyze large data. Prerequisite(s): MATH 511, STAT 571, basic programming knowledge.

**MATH 751. Numerical Linear Algebra (3).**

Includes analysis of direct and iterative methods for the solution of linear systems, linear least squares problems, Eigenvalue problems, error analysis, and reduction by orthogonal transformations.

Prerequisite(s): MATH 511, 547, 551 with a grade point of 2.000 or better in each, or departmental consent.

**MATH 753. Ordinary Differential Equations (3).**

Covers existence, uniqueness, stability and other qualitative theories of ordinary differential equations. Prerequisite(s): MATH 545 or 547 with a grade point of 2.000 or better, or departmental consent.

**MATH 755. Partial Differential Equations I (3).**

Studies the existence and uniqueness theory for boundary value problems of partial differential equations of all types. Prerequisite(s): MATH 547 with a grade point of 2.000 or better, or departmental consent.

**MATH 757. Partial Differential Equations for Engineers (3).**

Includes Fourier series, the Fourier integral, boundary value problems for the partial differential equations of mathematical physics, Bessel and Legendre functions, and linear systems of ordinary differential equations. Prerequisite(s): MATH 555 with a grade point of 2.000 or better.

**MATH 758. Complex and Vector Analysis for Engineers (3).**

A survey of some of the mathematical techniques needed in engineering including an introduction to vector analysis, line and surface integrals, and complex analysis, contour integrals and the method of residues. Not applicable toward a graduate degree in mathematics. Prerequisite(s): MATH 555 with a grade point of 2.000 or better.

**MATH 781. Cooperative Education (1-3).**

Work-related placement with a supervised professional experience to complement and enhance the student's academic program. Intended for master's level or doctoral students in math. Repeatable for credit. May not be used to satisfy degree requirements. Prerequisite(s): departmental consent, graduate GPA of 3.000 or above.

**MATH 802. Data Analytics Capstone (3).**

Individual directed study in an area of data analytics appropriate for each student's career objectives. Project must be approved and guided by a member of the graduate faculty. If an internship is used in substitution for this course, it needs to be approved prior to the start date of the internship, and the project(s) must be reported to a graduate faculty member. Prerequisite(s): successful completion of at least 12 credit hours of courses approved for the certificate program with a GPA of 3.000 or better, declaration of intent for certificate prior to enrolling.

**MATH 813. Abstract Algebra II (3).**

A continuation of MATH 713. Prerequisite(s): MATH 713 or equivalent.

**MATH 825. Topology II (3).**

A continuation of MATH 725. Prerequisite(s): MATH 725 or equivalent.

**MATH 828. Selected Topics Topology (2-3).**

Repeatable with departmental consent. Prerequisite(s): departmental consent.

**MATH 828G. Smooth Geometry (3).**

Begins with basic smooth manifold theory including topics such as vector bundles, tensor fields, flows, Lie derivatives and the theorems of Green, Gauss and Stokes. Introduces some elementary topics from Riemannian geometry.

**MATH 828I. Topics in Geometric Topology (3).**

Studies a variety of topics in low-dimensional topology including knot theory, the topological classification of surfaces and the classification

of three-dimensional manifolds. With regard to the latter, students also briefly discuss Thurston's Geometrisation Conjecture.

**MATH 828J. Smooth Geometry II (3).**

Survey of topics in the areas of smooth manifold theory and Riemannian geometry. Emphasizes the Riemann Curvature Tensor and the relationship between topology and positive curvature.

**MATH 828K. Partial Differential Operator Theory (3).**

Begins with an introduction to the theory of smooth manifolds, fiber bundles, their section spaces, and operators on sections spaces from a categorical point of view. Introduces jet theory with the goal of proving Peetre's theorem. Studies sheaves, ringed spaces, and morphisms of each with the ultimate goal of proving Slovak's generalization of Peetre's theorem. Finally, investigates applications of the two main theorems.

**MATH 829. Selected Topics in Geometry (2-3).**

Repeatable with departmental consent. Prerequisite(s): departmental consent.

**MATH 843. Real Analysis II (3).**

A continuation of MATH 743. Prerequisite(s): MATH 743 or equivalent.

**MATH 845. Complex Analysis II (3).**

A continuation of MATH 745. Prerequisite(s): MATH 745 or equivalent.

**MATH 848. Calculus of Variations (3).**

Includes Euler-Lagrange equations, variational methods and applications to extremal problems in continuum mechanics. Prerequisite(s): MATH 547 or 757.

**MATH 849. Selected Topics in Analysis (2-3).**

Repeatable with departmental consent. Prerequisite(s): departmental consent.

**MATH 851. Numerical Analysis of Ordinary Differential Equations (3).**

Includes single-step and multi-step methods of ordinary differential equations, stability, consistency and convergence, error estimation, step size selection, stiff systems, and boundary value problems. Prerequisite(s): MATH 555, 751.

**MATH 852. Numerical Analysis of Partial Differential Equations (3).**

Includes analysis of algorithms for the solution of initial value problems and boundary value problems for systems of PDEs with applications to fluid flow, structural mechanics, electromagnetic theory and control theory. Prerequisite(s): MATH 751.

**MATH 854. Tensor Analysis with Applications (3).**

After introducing tensor analysis, considers applications to continuum mechanics, structural analysis and numerical grid generation. Prerequisite(s): MATH 545 or 757.

**MATH 856. Partial Differential Equations II (3).**

A continuation of MATH 755. Prerequisite(s): MATH 755.

**MATH 857. Selected Topics in Engineering Mathematics (3).**

Advanced topics in mathematics of interest to engineering students, including tensor analysis, calculus of variations and partial differential equations. Not applicable toward the MS in mathematics.

**MATH 858. Selected Topics in Engineering Mathematics II (3).**

Advanced topics in mathematics of interest to engineering students, including tensor analysis, calculus of variations and partial differential equations. Not applicable toward the MS in mathematics.

**MATH 859. Selected Topics in Applied Mathematics (2-3).**

Repeatable with departmental consent.

**MATH 859K. Mathematical Physics (3).**

Advanced topics of mathematics as applied to problems in quantum computing and quantum information. Includes mappings, simulations and diffeomorphisms of quantum measures.

**MATH 859L. Mathematical Physics II (3).**

Advanced topics of mathematics as applied to problems in quantum computing and quantum information. Includes mappings, simulations and diffeomorphisms of quantum measures.

**MATH 859M. Computational Fluid Dynamics (3).**

A study of the fundamental equations in fluid mechanics. In particular, discusses numerical solvers of the Euler equations and, in general, conservation laws. The numerical methods are applied to fluid dynamical problems in plasma physics and nuclear fusion.

**MATH 859N. Math of Machine Learning I (3).**

Study of complex and quantum machine learning, evaluating the complexity of the mappings possible in tractable time.

**MATH 859O. Inverse Problems in Partial Differential Equations (3).**

A study of basic results in inverse problems for elliptic and parabolic partial differential equations. Goal is to understand and use some existing methods of proving uniqueness, stability and possibly existence (the orthogonality relations, exponential and singular solutions, etc.).

**MATH 880. Proseminar (1).**

Oral presentation of research in areas of interest to the students. Prerequisite(s): major standing.

**MATH 881. Individual Reading (1-5).**

Repeatable up to a maximum of 6 hours with departmental consent. Prerequisite(s): departmental consent.

**MATH 881AB. Applications of Conformal Mapping (3).**

Applications of conformal mapping: We will consider applications of conformal mapping to inverse problems.

**MATH 881Y. Inverse Problems II (3).**

Based on the book: "Introduction to the Theory of Inverse Problems" A.L. Bukhgeim, VSP Utrecht Boston Koln Tokyo 2000. We will cover chapters 1, 3 and 6. Ch.1. Inverse problems for difference operators  
1.1. Inverse problem of spectral analysis for Jacobi matrices  
1.2. Inverse problem for a difference equation with constant coefficients  
1.3. The problem of determining a difference operator in nonstationary statement  
Ch.3. Inverse problems for differential equations  
3.1. One-dimensional inverse problem for the wave equation in linearized case  
3.2. The method of transformation operators  
3.3. Uniqueness in multidimensional inverse problems  
Ch.6. Theory of stability of difference schemes  
6.1. The necessary conditions of finite stability  
6.2. Basic estimates  
6.3. Sufficient stability conditions  
6.4. Estimates of l-stability up to the boundary  
6.5. Convergence theorems  
6.6. Finite stability of two-layer schemes of canonical form  
6.7. Conditions of stability in terms of the transition operator.

**MATH 881Z. Topics in Geometry (3).**

Introductory course in geometry. Students learn about various classical geometries in two- and three- dimensions: Euclidean, projective, elliptic and hyperbolic.

**MATH 885. Thesis (1-4).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for credit for a maximum of 6 credit hours. Prerequisite(s): departmental consent.

**MATH 886. Thesis (2).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for credit.

**MATH 941. Applied Functional Analysis I (3).**

Introduces functional analysis and its applications. Prerequisite(s): MATH 843, Pre- or corequisite(s): MATH 755.

**MATH 942. Applied Functional Analysis II (3).**

Introduces functional analysis and its applications. Prerequisite(s): MATH 843, Pre- or corequisite(s): MATH 755.

**MATH 947. Theory Fluid Dynamics I (3).**

Mechanics of fluid flow, momentum and energy principles, Navier-Stokes and Euler equations, potential flows, vortex dynamics, stability analysis and numerical methods applied to fluid dynamics. Prerequisite(s): MATH 745.

**MATH 948. Theory Fluid Dynamics II (3).**

Mechanics of fluid flow, momentum and energy principles, Navier-Stokes and Euler equations, potential flows, vortex dynamics, stability analysis and numerical methods applied to fluid dynamics. Prerequisite(s): MATH 745.

**MATH 952. Advanced Topics in Numerical Analysis (3).**

Advanced topics of current research interest in numerical analysis. Topics chosen at instructor's discretion. Possible areas of concentration are numerical methods in ordinary differential equations, partial differential equations and linear algebra. Repeatable with departmental consent. Prerequisite(s): MATH 751, 851, and instructor's consent.

**MATH 958. Selected Advanced Topics in Applied Mathematics (3).**

Topics of current research interest in applied mathematics. Repeatable for credit with departmental consent. Prerequisite(s): instructor's consent.

**MATH 981. Advanced Independent Study in Applied Mathematics (1-3).**

Arranged individual directed study in an area of applied mathematics. Repeatable to a maximum of 6 hours. Prerequisite(s): must have passed the PhD qualifying exam and instructor's consent.

**MATH 985. PhD Dissertation (1-9).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable to a maximum of 24 credit hours. Prerequisite(s): must have passed the PhD preliminary exam.

## MBA - Master of Business Administration

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**MBA 781. Cooperative Education (1).**

Provides the graduate student with a field placement which integrates theory with a planned and supervised professional experience. Programs must be formulated in consultation with appropriate graduate faculty. May be repeated for credit up to 3 hours. May not be used to fulfill degree requirements.

**MBA 799. Professional Development/360 (0).**

MBA students conduct self-assessment and go through peer assessment of various competencies. They receive feedback on these competencies through a 360 assessment report. Provides students with the opportunity to reflect on the feedback on competencies, explore improvement

options, and outline development goals to challenge themselves over the course of the MBA program.

**MBA 802. Fundamentals of Accounting (1.5).**

Provides students whose undergraduate degrees were in disciplines other than business the background accounting fundamentals required for the MBA program. Topics covered include the design and use of financial statements including the balance sheet, income statement and statement of cash flows, and analyzing companies using financial ratios. Prerequisite(s): graduate standing and permission of the MBA director.

**MBA 803. Fundamentals of Finance (1.5).**

Provides students whose undergraduate degrees were in disciplines other than business the background finance fundamentals required for the MBA program. Topics covered include time value of money theory and calculations, investment decision rules, securities valuation, and fundamentals of capital budgeting. Prerequisite(s): MBA 802 or equivalent, graduate standing and MBA director's consent.

**MBA 804. Marketing Basics (1.5).**

Highlights foundation knowledge from the discipline of marketing integrated with a strong component of communication skills. Primarily, provides students with a knowledge base in marketing and assists in building oral and written communication skills necessary for success in the MBA curriculum and beyond. Prerequisite(s): graduate standing and permission of the MBA director.

**MBA 805. Management Basics (1.5).**

Highlights foundation knowledge from the discipline of management integrated with a strong component of communication skills. Primarily, provides students with a knowledge base in management and assists in building oral and written communication skills necessary for success in the MBA curriculum and beyond. Prerequisite(s): graduate standing and permission of the MBA director.

## ME - Mechanical Engineering

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**ME 502. Thermodynamics II (3).**

Continuation of ME 398, emphasizing cycle analysis, thermodynamic property relationships and psychrometrics, with an introduction to combustion processes and chemical thermodynamics. For undergraduate students only. Prerequisite(s): ME 398.

**ME 521. Fluid Mechanics (3).**

2 Classroom hours; 3 Lab hours. The definition of a fluid and the concept of a continuum. Stress and strain in a Newtonian fluid. Description and classification of fluid motions. Hydrostatic pressure and forces on submerged surfaces. Reynolds Transport Theorem and integral analysis of conservation laws. Introduction to differential analysis of fluid motion. Dimensional analysis and similitude. Study of flow in closed conduits: pressure drop in fully developed viscous flow. The boundary layer concept and lift and drag forces on immersed bodies. For undergraduate students only. Prerequisite(s): ME 335, 398, MATH 555; all with a minimum grade of C (2.000). Corequisite(s): ME 521L.

**ME 522. Heat Transfer (3).**

Introduction to the three modes of heat transfer in the context of the laws of thermodynamics; the heat equation and its application to steady conduction in one- and two-dimensions as well as to unsteady one-dimensional conduction; the thermal boundary layer, Reynolds Analogy, and the problem of convection; free and forced convection in internal and external flows; boiling and condensation; thermal radiation. Emphasizes problem solving using analytical methods approximate

solutions, analogies, empirical correlations, and numerical methods. For undergraduate students only. Prerequisite(s): ME 325, ME 521 and PHYS 314; each with a minimum grade of C (2.000).

**ME 533. Mechanical Engineering Laboratory (3).**

2 Classroom hours; 3 Lab hours. Introduces the basics of engineering measurements. Discusses related theory, followed by applications in such areas as strain, sound, temperature and pressure measurements. Format includes lectures, recitation (presenting the concept of the experiment to be performed and the required data analysis), and laboratories. Analyzes the data obtained from measuring systems set up and operated in the laboratory to demonstrate and reinforce fundamental concepts of engineering mechanics. For undergraduate credit only. Prerequisite(s): EE 282, AE 333, ME 325, ENGL 102, COMM 111, PHYS 315. Pre- or corequisite(s): ME 522. Corequisite(s): 533L.

**ME 541. Mechanical Engineering Design II (3).**

Continues on the basis of applications of engineering design principles, engineering analytical skills and failure theories, to the creative design of mechanical assemblies and equipment. Using the basics of machine design (e.g., design process, engineering mechanics and materials, failure prevention under static and variable loading), students learn to examine the safety of the structure, leading to decision making and selection of mechanical components and standard parts (e.g., shafts, bearings, fasteners, gears, springs, sprockets, breaks and clutches), according to the available standards, codes, handbooks and catalogs. Problem definition, conceptual design, feasibility studies, design calculations to obtain creative solutions for current real engineering problems, introduction to human factors, economics and reliability theory are part of the experience through group and/or individual design projects. For undergraduate students only. Prerequisite(s): ME 339 and ME 439; both with a GPA of 2.000 or above. Pre- or corequisite(s): ME 475.

**ME 581. Introduction to Corrosion (3).**

Presents information about basic corrosion processes, underlying principles of corrosion formations, and general protection methods. Studies basic corrosion and corrosion mechanisms, importance of corrosion, coating systems, and how the materials are protected from the corrosion formations. Concerns fundamental theory of the thermodynamics and kinetics of the corrosion process of metals and alloys as well as polymer materials both in atmosphere and water solutions. Focuses on electrochemical aspects and the influences of the properties of the metals and their oxides on the corrosion behavior, which is exemplified by different corrosion types. Existing corrosion protection strategies, including surface treatments and coatings are described and choice of material is discussed from a corrosion point of view. Prerequisite(s): ME 250 and ME 398; or instructor's consent.

**ME 602. Engineering for the Environment (3).**

Focuses on air and ground water pollution as well as remediation; briefly covers the major pollutants, their health effects, their sources, their transport, and attainment/remediation technologies. Design aspects are included in the term project activities centered on technologies for environmental pollution control. Satisfies the ME departmental criteria for ME elective or open technical elective course for graduation. Prerequisite(s): ME 325 (or MATH 551), ME 398 (or CHEM 212) and MATH 344, (no grade lower than one that generates 2.000 or more credit points per credit hour will be accepted for this course), or the instructor's consent.

**ME 625. Applications in Thermal Engineering (3).**

Application of energy concepts to thermal fluid applications. Open-ended problems in incompressible and compressible fluid flows, boundary layer modeling and analogies, LMTD, heat exchangers, pumps and turbines, modeling and prototype, and gas radiation.

Theoretical analysis and report preparation. For undergraduate students only. Prerequisite(s): ME 521 and ME 522; both with a GPA of 2.000 or above. Pre- or corequisite(s): ME 533.

**ME 633. Mechanical Engineering Systems Laboratory (3).**

2 Classroom hours; 3 Lab hours. Selected experiments illustrate the methodology of experimentation as applied to mechanical and thermal systems. Experiments include the measurement of performance of typical systems and evaluation of physical properties and parameters of systems. Group design and construction of an experiment is an important part of the course. Team and individual efforts are stressed as are written and oral communication skills. For undergraduate students only. Prerequisite(s): ME 522, ME 533. Corequisite(s): ME 633L.

**ME 637. Computer-Aided Engineering (3).**

2 Classroom hours; 3 Lab hours. Integrates computer-aided design, finite element analysis, kinematics analysis, heat transfer analysis and other considerations for design of mechanical components and systems. Provides a blend of theory and practice. Prerequisite(s): ME 339 and ME 439, or equivalent. Corequisite(s): ME 637L.

**ME 644. Design of HVAC Systems (3).**

Analysis and design of heating, ventilating and air-conditioning systems based on psychometrics, thermodynamics and heat transfer fundamentals with focus on advanced duct design for composite building, cooling load calculations and thermal-issues based psychometric. Focuses on design procedures for space air-conditioning, and heating and cooling loads in buildings. Prerequisite(s): ME 521, 522; or instructor's consent.

**ME 650. Selected Topics in Mechanical Engineering (1-3).**

New or special topics are presented on sufficient demand. Repeatable for credit with a change of content. Prerequisite(s): departmental consent.

**ME 651. Biomaterials (3).**

Introduction to biomaterials and biotechnology for both undergraduate and graduate students focusing on biomaterials (e.g., metals and alloys, composites, polymers and ceramics), biodevices, basic fabrication and characterization techniques, and their general properties and applications. Prerequisite(s): ME 250, ME 251; or instructor's consent.

**ME 659. Mechanical Control Systems (3).**

Cross-listed as EE 684. Modeling and simulation of dynamic systems. Theory and analysis of the dynamic behavior of control systems, based on the laws of physics and linear mathematics. Concerns classical methods of feedback control systems and design. Prerequisite(s): (1) EE 282 and MATH 555, or (2) EE 383.

**ME 660. Polymer Materials and Engineering (3).**

Introduces the basic science and engineering of polymer materials. Provides the scientific foundation for an understanding of the relationships among material structures and properties of different types of polymer materials (thermoplastics, thermosets, synthetic fibers and rubbers, etc.) for various applications from consumer electronics to aviation industry. An understanding of these materials, processing techniques, their properties, and how they are applied in the industry. Prerequisite(s): ME 250 or CHEM 211.

**ME 662. Senior Capstone Design (3).**

1 Classroom hour; 6 Lab hours. Culminating course allows students nearing graduation to combine the knowledge and skills acquired in their program and apply them to a major project or assignment. Exercise in the practice of mechanical engineering for undergraduate students in their graduating semester; students engage in a comprehensive design project requiring the integration of knowledge gained in prerequisite engineering, science and design courses along with economic comparisons of engineering alternatives considering

the time value of money, taxes and depreciation. Team effort and both oral and written presentations are a part of the experience. For undergraduate students only. Prerequisite(s): ME 522 and ME 541 with a GPA of 2.000 or better. Pre- or corequisite(s): ME 633 and ME 659.

**ME 665. Selection of Materials for Design and Manufacturing (3).**

Focuses on the selection of engineering materials to meet product and manufacturing requirements. Solution to various product and manufacturing problems by appropriate selection of materials is illustrated through the use of numerous examples and case studies. Prerequisite(s): ME 439.

**ME 667. Mechanical Properties of Materials (3).**

Major focus on deformation mechanisms and on crystal defects that significantly affect mechanical properties. Also covers plasticity theory, yield criteria for multi-axial states of stress, fracture mechanics and fracture toughness. Includes some review of basic mechanics of materials and elasticity as needed. Prerequisite(s): ME 439.

**ME 670. Introduction to Nanotechnology (3).**

Introduction to the underlying principles and applications of the field of nanotechnology and nanoscience. Covers basic principles of nanotechnology, nanomaterials and associated technologies and provides a background of the understanding, motivation, implementation, impact, future, and implications of nanotechnology. Focuses on processing techniques of nanoparticles, nanofibers/wires, nanotubes, nanofilms and nanocomposites using physical, chemical and physicochemical techniques, as well as their characterizations and potential commercial applications. An understanding of nanomaterials, fabrication and characterization techniques, and how they are applied in nanodevice fabrication. Material covered includes nanofabrication technology (how one achieves the nanometer length scale, from "bottom up" to "top down" technologies), the interdisciplinary nature of nanotechnology and nanoscience (including areas of chemistry, material science, physics and molecular biology), examples of nanoscience phenomena (the crossover from bulk to quantum mechanical properties), and applications (from integrated circuits, quantum computing, MEMS and bioengineering). Prerequisite(s): ME 250 and ME 398; or instructor's consent.

**ME 672. Manufacturing of Composites (3).**

2 classroom hours; 3 laboratory hours. Provides the basis for understanding and use of composite materials in various engineering applications such as space and aerospace structures. Different classes of composite materials, the characteristics of their constituents, an introduction to micromechanics of composites, commonly used composite manufacturing techniques in detail, along with their capabilities and limitations, characterization methods, degradation, joining, tooling, machining, and recycling of composites is discussed. Contains laboratory modules designed to provide hands-on experience to emphasize the practical aspects of the topics covered. Prerequisite(s): ME 250, ME 251, AE 333; or instructor's consent.

**ME 673. Recovery of Engineering Materials (3).**

Introduces basic standards in recycling and reusing processes of different materials and the importance of recycling for the economy, health and environment. Focuses on basic separation techniques of various recyclable materials, recycled products, reprocessing, as well as characterizations and potential commercial applications in different industries. Undergraduate and graduate students are expected to gain an understanding of recycling processes, recycled materials and applications. Prerequisite(s): ME 250 and ME 398 or instructor's consent.

**ME 678. Studies in Mechanical Engineering (1-3).**

Arranged individual, independent study in specialized content areas in mechanical engineering under the supervision of a faculty member.

Requires written report or other suitable documentation of work for departmental records. Three (3) hours maximum technical elective credit. Not for graduate credit. Prerequisite(s): departmental consent.

**ME 680. Laser Materials Processing and Design (3).**

Studies laser science such as the methods, processes or products that make use of the spectrum of laser light. Covers laser processing to produce features and modify properties in metals, organic polymers, inorganic insulators, superconductors, semiconductors and biological materials on the meso/micro/nano scales. Research into laser nano/micro materials processing in electronic, opto-electronic, MEMS, medical-therapeutic and other applications. Finite volume-based software Flow 3D is part of the lab experience. Prerequisite(s): ME 398 or instructor's consent. Corequisite(s): ME 680L.

**ME 680L. Laser Materials Processing and Design Lab (0).**

Studies laser science such as the methods, processes or products that make use of the spectrum of laser light. Covers laser processing to produce features and modify properties in metals, organic polymers, inorganic insulators, superconductors, semiconductors and biological materials on the meso/micro/nano scales. Research into laser nano/micro materials processing in electronic, opto-electronic, MEMS, medical-therapeutic and other applications. Finite volume-based software Flow 3D is part of the lab experience. Corequisite: ME 680.

**ME 702. Energy and Sustainability (3).**

Cross-listed as PHYS 702. Introduces sustainability in a world of increasing population with more energy intensive lifestyles and diminishing resources; anthropogenic global climate change and the engineer's responsibilities; estimating our carbon footprint; surveys alternative energy sources with special emphasis on wind and solar energy; life cycle analysis (LCA) of engineered products; the electric grid; emissions from various transportation modes, and alternatives. Consists of traditional lectures, seminars by invited experts, and case studies. Meets the ME undergraduate curricular requirement for thermal/fluids elective and/or a general ME elective. *Course includes diversity content.* Pre- or corequisite(s): ME 522 or PHYS 551; or instructor's consent.

**ME 709. Injury Biomechanics (3).**

Offers insight into the trauma problem and methods used to quantify and reduce it. Research methods used in injury biomechanics and their limitations are discussed including tests with human volunteers, cadavers, animals, mechanical crash test dummies and computer models. Provides a basic understanding of injury mechanisms and tolerances for the different body parts, including head, spine, thorax and extremities. Presents both automotive and aircraft impact safety regulations on occupant protection and related biomechanical limits. Students are exposed to and gain experience in using mathematical/numerical/computer models for injury biomechanics. Prerequisite(s): instructor's consent.

**ME 710. Six Sigma for Mechanical Engineers (3).**

Introduces the basic principles behind six sigma engineering as applicable to mechanical engineering. Provides the scientific foundation for an understanding of the six sigma tools and principles and applications towards design and development of mechanical components, ensuring regulatory compliance through qualification and validation by identifying manufacturing issues, developing advanced manufacturing cost-effective solutions, and overseeing successful implementation into production, eliminating waste to reduce overhead motive, cost, etc. Uses a set of management methods, mainly empirical and statistical methods, and creates a special infrastructure of people within the organization who are experts in these methods. Students gain an understanding of how six sigma improves the quality of the output of a process by removing the causes of defects and minimizing variability in the various facets of mechanical engineering related to industry. Pre-

or corequisite(s): ME 339 and MATH 555, both with a GPA of 2.000 or above; or graduate status.

**ME 719. Basic Combustion Theory (3).**

Introduces the fundamental principles of combustion processes. Examines the chemistry and physics of combustion phenomena, that is, detonation and flames, explosion and ignition processes. Prerequisite(s): CHEM 211, ME 522.

**ME 725. Mechanical Vibrations and Acoustics (3).**

Studies free and forced vibrations of damped and undamped single and multiple degrees of freedom discrete mechanical systems, vibration isolation, rotating imbalance, psychophysiological acoustics, noise emission assessment, types of sound waves and their sources, sound reflection/absorption/transmission/diffraction, sound propagation in porous materials and multilayered walls, sound propagation in ducts, silencer design, and mechanisms for acoustic radiation from a vibrating surface. Prerequisite(s): ME 325, ME 335, MATH 555; or instructor's consent.

**ME 728. Advanced Electronic Materials (3).**

Focuses on electronic materials which are fundamental and critical to performances and applications of electronic devices. Structure-property and property-relationships of different types of electronic materials are discussed. Cutting edge technologies in development of advanced electronic materials and devices are introduced. High level knowledge of electronic material structures, properties and applications of electronic materials, and basic principles for material design for electronics. Prerequisite(s): ME 250 or PHYS 313; or instructor's consent.

**ME 729. Computer-Aided Analysis of Mechanical Systems (3).**

Modeling and analysis of planar motion for multibody mechanical systems including automatic generation of governing equations for kinematic and dynamic analysis, as well as computational methods and numerical solutions of governing equations. Computer applications. Open-ended student projects on engineering applications such as mechanisms design and vehicle dynamics. Technical elective course for mechanical engineering students. Prerequisite(s): ME 335, MATH 555 or instructor's consent. Pre- or corequisite(s): ME 339.

**ME 730. Modeling of Engineering Systems (3).**

Provides rigorous understanding of physics and engineering mathematics in order to model practical scientific and engineering problems in fluid mechanics, heat transfer, solid mechanic, and vibrations. Focuses on analytical approaches and introduces computational methods for modeling engineering systems using computer codes. Prerequisite(s): MATH 555 and ME 325, or departmental consent.

**ME 731. Advanced Heat Exchanger Design (3).**

Topics cover advanced design of fluidized bed, heat pipe, and high-temperature heat exchangers. Design experience through individual projects. Prerequisite(s): ME 521, ME 522.

**ME 737. Robotics and Control (3).**

Systems engineering approach to robotic science and technology. Fundamentals of manipulators, sensors, actuator, end-effectors and product design for automation. Includes kinematics, trajectory planning, control, programming of manipulator and simulation, along with introduction to artificial intelligence and computer vision. Prerequisite(s): EE 282, ME 335, ME 339, MATH 555 or graduate status.

**ME 739. Advanced Machine Design (3).**

A broad coverage of principles of mechanical analysis and design of machine elements. Emphasizes dynamic system modeling, prediction of natural frequencies and forced response, effect of support flexibility,

failure theories used in design and fatigue life prediction. Typical mechanical systems studied are gears, bearings, shafts, rotating machinery and many types of spring-mass systems. Uses fundamentals learned in mechanics, strength of materials and thermal sciences to understand mechanical system modeling, analysis and design. Prerequisite(s): ME 541 or instructor's consent.

**ME 740. Indoor Air Pollution and Simulation (3).**

This course focuses on air pollution in building indoors and modeling topics with an emphasis on how air quality models can be used to help inform decision makers. In addition to introducing the fundamentals of air pollution and addressing general modeling considerations, topics covered in this course include the health and environmental effects of key air pollutants, how air quality modeling was used in major studies leading to better air quality. Specific modeling topics include box and plume modeling, indoor air quality and monitoring, numerical and statistical modeling. Prerequisite(s): ME 398 and ME 521 with a GPA of 2.000 or better in both courses, or graduate status.

**ME 745. Design of Thermal Systems (3).**

Covers component design for a typical Rankine power cycle. Design of boilers, condensers, various types of turbine, pipe flow network, and power plant system integration are covered. Prerequisite(s): ME 521, ME 522.

**ME 747. Microcomputer-Based Mechanical Systems (3).**

2 Classroom hours; 3 Lab hours. Microcomputer-based real-time control of mechanical systems. Familiarizes students with design and methodology of software for real-time control. Includes an introduction to the C programming language which is most relevant to interfacing and implementation of control theory in computer-based systems. Laboratory sessions involve interfacing microcomputers to mechanical systems and software development for control methods such as PID. Prerequisite(s): ME 659 or instructor's consent.

**ME 749. Applications of Finite Element Methods in Mechanical Engineering (3).**

2 Classroom hours; 3 Lab hours. Introduces the finite element method (FEM) as a powerful and general tool for solving differential equations arising from modeling practical engineering problems. Finite element solutions to one- and two-dimensional mechanical engineering problems in mechanical systems, heat transfer, fluid mechanics and vibrations. Includes Galerkin's and variational finite element models. Introduces commercial finite element computer tools such as ANSYS. Prerequisite(s): ME 325 and ME 439. Pre- or corequisite(s): ME 522 or graduate status. Corequisite(s): ME 749L.

**ME 749L. Applications of Finite Element Methods in Mechanical Engineering Lab (0).**

Lab for ME 749 (Applications of Finite Element Methods in Mechanical Engineering). Corequisite(s): ME 749.

**ME 750. Selected Topics in Mechanical Engineering (1-3).**

New or special topics are presented on sufficient demand. Repeatable for credit with a change of content. Prerequisite(s): departmental consent.

**ME 750AE. Computational Modeling for Fluid Flow and Heat Transfer (3).**

Reviews the basic laws of fluid flow and heat transfer including the Navier-Stokes equations. Applications include a CFD software emphasizing the finite volume method and introducing turbulence modeling. Additional topics include grid generation and benchmarking exercises as well as open-ended projects. Prerequisite(s): ME 325 (or AE 227) and ME 522 (or AE 424) with a minimum grade of C in each, or instructor's consent.

**ME 750AF. Autonomous Vehicles (3).**

Overview of the concepts required to create autonomous vehicles. Introduces topics such as sensing, localization, perception, deep learning for motion planning, decision making, object recognition, and intelligent control. Pre- or corequisite(s): ME 659 or equivalent.

**ME 750AI. Phase Transformations in Materials (3).**

In-depth analysis of the thermodynamics and kinetics of phase transformation in materials. Topics include: phase equilibria and transformations, thermodynamics applied to processing of materials (metal and alloys, polymers, composites, ceramics, etc.), and kinetics in materials systems including diffusion, nucleation, growth, gas-solid and liquid-solid reactions. Highlights a number of commercially significant applications where phase transformations are important. Prerequisite(s): ME 250, ME 398; or graduate student status.

**ME 750AJ. Transport in Porous Media (3).**

Studies the fundamentals of heat and mass transport in porous media including single- and multiphase flows and conduction/convection/radiation, and phase change heat transfer in energy, thermal management, water desalination and filtration systems. Prerequisite(s): graduate standing or departmental consent.

**ME 751. Selected Topics in Mechanical Engineering (1-3).**

New or special topics are presented on sufficient demand. Repeatable for credit with a change of content. Prerequisite(s): departmental consent.

**ME 752. Failure Analysis Methods and Tools (3).**

Introduces the fundamental concepts of the failure analysis of engineering components at various environmental and testing conditions, and provides general knowledge on the procedures and mechanisms involved in failure analysis. Topics include procedural approaches in failure analysis; metallographic and fractographic studies, analysis of broken components by macroscopic, microscopic and nanoscopic observations, reviews common experimental methods used in failure analysis, and specific descriptions of failures for metallic, ceramics, polymeric and composite materials at micro- and nanoscales. Students learn advanced materials characterization techniques including scanning electron microscopy (SEM), energy dispersive spectroscopy (EDS) and compositional dot mapping, x-ray diffraction (XRD), Fourier transform infrared spectroscopy (FTIR) optical microscopy, and fracture surface sample preparation. Undergraduate and graduate students are expected to gain an understanding of these subjects, and how they are applied in industrial applications. Prerequisite(s): ME 250, and ME 439; or instructor's consent.

**ME 753. Advanced Materials for Energy Systems (3).**

Introduces the advanced materials and fundamental principles behind the energy systems and devices. Focuses on advanced materials (e.g., metals and alloys, composites, polymers, ceramics and semiconductors) at micro- and nanosize, novel energy conversion systems and devices, fabrication and characterization techniques and their general properties and applications. Efficiencies of most energy systems are limited by materials engineering and reliability of these systems. Covers the application of scientific and engineering principles for materials used in energy systems. Equips students with knowledge and skills that enable them to solve a wide range of energy materials technology and engineering problems to minimize operational risks and maximize process reliability, and ensure a more sustainable future. Students gain an understanding of these advanced materials and devices, importance of them, and how they are applied in energy related technologies and future developments. Prerequisite(s): ME 250, ME 398, ME 469 or ME 522 (either one of ME 469 or ME 522); or instructor's consent.

**ME 758. Nonlinear Controls of Electro-Mechanical Systems (3).** Cross-listed as ME 850AE. Standard first nonlinear controls course. Covers stability, feedback linearization (robotic, mechanical, electro-mechanical system applications), differentially-flat systems (with rotor-craft position tracking applications), back-stepping control-design methods (electro-mechanical, robotic and rotor-craft applications), MIMO systems, normal form, zero dynamics, and adaptive control of robotic systems. EE 792, Linear Systems, while not a prerequisite, is helpful. Prerequisite(s): ME 659 or EE 684; or equivalent.

**ME 760. Fracture Mechanics (3).** Covers fracture mechanics in metals, ceramics, polymers and composites. Suitable for graduate and undergraduate study in metallurgy and materials, mechanical engineering, civil engineering and aerospace engineering where a combined materials-fracture mechanics approach is stressed. Prerequisite(s): ME 439 or instructor's consent.

**ME 762. Polymeric Composite Materials (3).** Designed to provide students with an understanding and knowledge about polymeric composite materials. The characteristics of various reinforcements and polymeric matrices are presented and their processing techniques, capabilities and limitations are highlighted. In addition, various methods for manufacturing of polymeric composites along with their capabilities are discussed. Characterization techniques, test methods, assembly, and joining of polymeric composites are presented. Prerequisite(s): ME 250, ME 251, AE 333, ME 439, and MATH 555; or instructor's consent.

**ME 775. Introduction to Microelectromechanical Systems (3).** Introduces the design and manufacture of microelectromechanical systems, including principles of MEMS sensing and actuation, microfabrication and packaging. Covers electrical, thermal and mechanical behavior of microsystems, the design of electromechanical and thermal sensors and actuators, MEMS microfabrication, and MEMS packaging techniques. Studies a variety of microscale sensors and actuators (e.g., electrical switches, pressure sensors, inertial sensors and optical MEMS). Devotes the last third of the semester largely to design. Prerequisite(s): ME 439, ME 533, and MATH 555 with a minimum of C or better; or graduate standing.

**ME 777. Mechanical Engineering Seminar (0).** A mechanical engineering graduate seminar to develop critical thinking/foundation for students' future professional careers with cutting-edge research activities in the area of mechanical engineering. Provides the necessary scientific and mechanical engineering knowledge for future successful professionals. Students are required to register and pass this course at least one semester during their entire graduate study. Course meets biweekly per semester.

**ME 781A. Cooperative Education (1).** Introduces the student to professional practice by working in industry in an academically-related job and provides a planned professional experience designed to complement and enhance the student's academic program. Individualized programs must be formulated in consultation with, and approved by, appropriate faculty sponsors and cooperative education coordinators. Intended for students who will be working full time on their co-op assignment and need not be enrolled in any other course. Graded Cr/NCr unless student has received permission before enrolling for course to be used as an elective. Repeatable for credit. Prerequisite for credit: approval by the appropriate faculty sponsor.

**ME 781P. Cooperative Education (1).** Introduces the student to professional practice by working in industry in an academically-related job and provides a planned professional experience designed to complement and enhance the student's academic program. Individualized programs must be formulated in consultation with, and approved by, appropriate faculty sponsors and cooperative

education coordinators. Students must enroll concurrently in a minimum of 6 hours of coursework including this course in addition to a minimum of 20 hours per week at their co-op assignment. Graded Cr/NCr unless student has received permission before enrolling for course to be used as an elective. Repeatable for credit. Prerequisite(s): approval by the appropriate faculty sponsor.

**ME 782. Engineering Applications of Computational Fluid Dynamics and Heat Transfer (3).** Lectures review the basic laws of fluid flow and heat transfer including the Navier-Stokes equations. Laboratory activities include use of a CFD software emphasizing the finite volume method and introducing turbulence modelling. Additional topics include grid generation and benchmarking exercises as well as open-ended projects. Prerequisite(s): ME 325 (or MATH 551) and ME 522 (or AE 424) with a minimum grade of C in each, or the instructor's consent, or graduate standing.

**ME 801. Boundary Layer Theory (3).** Development of the Navier-Stokes equation, laminar boundary layers, transition to turbulence, turbulent boundary layers, and an introduction to homogeneous turbulence. Prerequisite(s): ME 521 or departmental consent.

**ME 802. Turbulence (3).** An overview of the theory, practical significance and computation of turbulent fluid flow. Prerequisite(s): ME 521, 801.

**ME 803. Solar Energy Materials (3).** Focuses on working mechanism, design, fabrication and manufacturing of solar energy technologies, including solar thermal energy systems, photovoltaic systems and photocatalytic processes. Topics include non-concentrating solar collectors; concentrating solar collectors; first, second and third generation of photovoltaics; photo-electrochemical cells and photocatalytic processes for clean fuel generation and water treatment. In addition, planning, installation and operation, cost and payback analysis of solar energy systems are also included. Prerequisite(s): graduate student status or instructor's consent.

**ME 829. Advanced Computer-Aided Analysis of Mechanical Systems (3).** Computational methods in modeling and analysis of spatial multibody mechanical systems. Includes Euler parameters, automatic generation of governing equations of kinematics and dynamics, numerical techniques and computational methods; computer-oriented projects on ground vehicles with suspension and steering mechanisms, crashworthiness and biodynamics. Prerequisite(s): ME 729 or instructor's consent.

**ME 835. Modeling and Optimization of Building Energy (3).** Focuses on building energy modeling and optimization topics with an emphasis on how building energy models can be used to help inform decision makers. In addition to introducing the fundamentals of building physics and addressing general modeling considerations, topics covered in this course include the application of thermodynamics, heat transfer and fluid mechanics. This course builds essential knowledge of building energy and sustainability and provides the necessary background to use building energy simulation software tools. The goal of this course is using building performance modeling as an investigative tool to improve building energy efficiency. Prerequisite(s): graduate student status.

**ME 844. Advanced Biomaterials (3).** Explores the cutting-edge technologies for synthesis of advanced biomaterials related to biotechnology. Focuses on biomaterials (e.g., metals and alloys, composites, polymers and ceramics), biodevices, basic fabrication and characterization techniques and their general properties and applications. The interaction between the human body environment and synthetic materials, including materials for medical implants and for dental restoration and appliances is explored. Tissue

engineering, biosensing, imaging and drug delivery interact directly with biomaterials. Consideration of new technologies that depend on overcoming present material limits, and improving material/biological environment interactions. Throughout the lectures, students are expected to gain an understanding of these materials, importance of them, and how they are applied in medical technology. Prerequisite(s): ME 250, and ME 651; or instructor's consent.

**ME 845. Renewable Energy (3).**

A study of renewable energy, covering current energy portfolio, energy projections, energy sources, energy storage and energy devices. Review of major types of renewable energy including wind, solar, biomass, geothermal and hydropower/marine; alternative fuel and ammonia; energy storage technologies and batteries; and hydrogen energy and fuel cells. Prerequisite(s): graduate student status.

**ME 848. Recycling of Advanced Engineering Materials (3).**

Introduces the fundamentals of recycling processes, recycling, reprocessing and reusing advanced materials, importance of recycling for the economy, health and environment, and future trends in the field. Focuses on fundamental aspects of advanced materials recycling processes with regard to efficiency of the recycling methods, comparison of the alternative processes, energy usage and efficiency, cost analysis, environmental friendliness (reduction of air, water and soil pollutions), return on investment of recycling factories, characterization, quality and marketability of the recyclates. Graduate students are expected to gain knowledge of fundamental aspects of recycling processes, understanding the separation science and technology, and new techniques developed in the field. Prerequisite(s): ME 250 and ME 522; or instructor's consent.

**ME 850. Selected Topics in ME (1-3).**

New or special topics are presented on sufficient demand. Repeatable for credit with a change of content. Prerequisite(s): departmental consent.

**ME 850AG. Nonlinear Dynamics and Chaos (3).**

Provides an introduction to nonlinear systems including one-dimensional flows, two dimensional flows and chaos with heavy emphasis on mathematical theory. Covers a wide range of disciplines, from biology to engineering. Studies several classes of devices including applications to mechanical vibrations, lasers, biological rhythms, insect outbreaks and even a technique for using chaos to send secret messages. Devotes a portion of the semester to the design and analysis of physical and/or biological systems. Prerequisite(s): graduate standing.

**ME 854. Two-Phase Flow Heat Transfer (3).**

Thermodynamic and mechanical aspects of interfacial phenomena, boiling; condensation near immersed surface, pool boiling, internal flow convective boiling and condensation. Prerequisite(s): ME 522, MATH 555, or departmental consent.

**ME 859. Introduction to Molecular Simulations (3).**

Introduces the molecular simulation methods (classical molecular dynamics simulations and Monte-Carlo simulation) aimed at understanding fundamentals of the nanoscale mechanical, thermal, materials, energy, and bio systems and their engineering for desired functionalities. Prerequisite(s): MATH 555 and ME 335, or instructor's consent.

**ME 861. Advanced Nonlinear Controls of Electro-Mechanical Systems (3).**

Lyapunov theorems for obtaining boundedness of closed-loop signals, bounding asymptotic output tracking/regulation errors, design methodologies associated therein; concepts of global versus semi-global results, invariant sets, existence of Lyapunov functions. Feedback linearization, methods of dynamic extension, differentially-

flat systems, back-stepping control-design method, relative degree for SISO and relative degree for MIMO systems, normal form, zero dynamics of nonlinear systems, differentiable manifolds, Lie brackets, Frobenius theorem, nonsingular distributions, diffeomorphisms, local versus global concepts. Adaptive control and associated Barbalat-like theories. Two/multiple-time-scale methods for appropriate-tracking and regulation. If time-permits: variable-structure control design including the design of chatter-free versions of the control laws, nonlinear observers, design of optimal trajectories and feedback optimal control laws for nonlinear systems, and using neural networks therein. Prerequisite(s): ME 659 or EE 684; or equivalent.

**ME 862. Synthesis and Applications of Nanomaterials (3).**

Introduces various types of nanomaterials, nanostructures, their synthesis methods, properties, characterization techniques, and explores their engineering applications. The structural defects, purification techniques, and functionalization of nanomaterials and nanostructures is discussed. Self-assembly of nanomaterials in various patterns and processing of structural nanocomposites is lectured and several lab activities are performed. In addition, fabrication of nanodevices, nanosensors, energy storage systems, and various forms of nanocomposites are explored and their performance is discussed. Prerequisite(s): ME 439, ME 670; or instructor's consent.

**ME 865. Corrosion Science Engineering (3).**

Designed for graduate students aimed at investigating the complex causes of corrosion problems and failures. Emphasizes the electrochemical reactions occurring and the tools and knowledge necessary for predicting corrosion, measuring corrosion rates, and combining this with prevention and materials selection. Studies oxidation and degradation processes, and protection methods. Provides an overview of the surface treatment, surface modification, and coatings synthesis and deposition technologies. Conventional and most advanced techniques and processes of coatings and thin films deposition to prevent corrosion. Surface interface phenomena occurring during the coatings of thin films deposition (such agglomeration, adsorption, diffusion, nucleation, microstructure development, etc.) are covered. Coating techniques, monitoring, performance evaluation, characterization and applications of advanced coatings in industry are investigated for advanced corrosion protection. Prerequisite(s): ME 250, ME 398, ME 581; or instructor's consent.

**ME 866. Advanced Fracture Mechanics (3).**

Covers the fracture mechanics of elastic-brittle, ductile, time dependent, and heterogeneous materials at an advanced level. The material is suitable for graduate study only in metallurgy and materials, mechanical engineering, and aerospace engineering where a combined materials-fracture mechanics approach is stressed. Prerequisite(s): ME 250, AE 333, or departmental consent.

**ME 868. Advanced Failure Analysis (3).**

Introduces the advanced concepts of failure analysis of engineering components at various environmental and testing conditions. Topics include analysis of broken components by macroscopic, microscopic and nanoscopic observations, review of common experimental methods used in failure analysis, and specific description of failures for metallic, ceramics, polymeric and composite materials at micro and nanoscales. Graduate students are expected to gain an understanding of these subjects and how they are applied in industrial applications. Prerequisite(s): ME 250, 439, and 752; or instructor's consent.

**ME 870. Advanced Laser Applications in Manufacturing (3).**

Examines laser technology which is defined as the methods, processes or products that make use of the spectrum of laser light, and any system whose function is to study, measure, transform or transmit the light. Covers laser processing to produce features and modify properties in metals, organic polymers, inorganic insulators, superconductors,

semiconductors and biological materials on the meso, micro and nano scales. Students analyze and discuss selected technical papers on using laser nano/micro materials processing in electronic, opto-electronic, MEMS, medical-therapeutic applications, heat treatment, scanning, engraving, photolithography, peening, cladding, engraving and bonding. Investigates cutting-edge technologies in design and applications of new laser systems. Finite volume-based software Flow 3D is part of the lab experience. Prerequisite(s): ME 522 or instructor's consent. Corequisite(s): ME 870L.

**ME 870L. Advanced Laser Applications in Manufacturing Lab (0).**

Examines laser technology which is defined as the methods, processes or products that make use of the spectrum of laser light, and any system whose function is to study, measure, transform or transmit the light. Covers laser processing to produce features and modify properties in metals, organic polymers, inorganic insulators, superconductors, semiconductors and biological materials on the meso, micro and nano scales. Students analyze and discuss selected technical papers on using laser nano/micro materials processing in electronic, opto-electronic, MEMS, medical-therapeutic applications, heat treatment, scanning, engraving, photolithography, peening, cladding, engraving and bonding. Investigates cutting-edge technologies in design and applications of new laser systems. Finite volume-based software Flow 3D is part of the lab experience. Corequisite: ME 870.

**ME 872. Graduate Capstone Design (3).**

Allows graduate students to combine the knowledge and skills they have acquired in their graduate program and apply them to a major project or assignment for an experiential, induced, active and applied learning experience. Exercise in the practice of mechanical engineering for graduate students; students engage in a comprehensive design project requiring the integration of knowledge gained in engineering, science and design courses. Both oral and written presentations are a part of the experience. Prerequisite(s): graduate status.

**ME 875. Advanced Robotics and Mechanism Synthesis (3).**

Designed to expose graduate students to the design and analysis theory of different mechanisms/robots that are needed in several sectors such as manufacturing, rehabilitation and military applications. Introduces the algebraic tools used to describe motion and the basics of kinematic synthesis theory. This is applied to the design of planar mechanisms and spatial mechanisms. Addresses advanced topics in kinematics including quaternion methods, introduction to screw-based kinematics and its applications to mechanism analysis and synthesis, and open research problems in robotics. Prerequisite(s): ME 737 or instructor's consent.

**ME 876. Thesis (1-6).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for credit toward the MS thesis option up to 6 credit hours. Prerequisite(s): MS thesis advisor's consent.

**ME 878. Master's Directed Project (1-4).**

A project conducted under the supervision of an academic advisor for the directed project option. Requires a written report and an oral presentation on the project. Prerequisite(s): consent of academic advisor.

**ME 890. Independent Study in Mechanical Engineering (1-3).**

Arranged individual, independent study in specialized content areas. Prerequisite(s): instructor's consent.

**ME 960. Advanced Selected Topics (1-3).**

New or specialized advanced topics in mechanical engineering. Prerequisite(s): instructor's consent.

**ME 976. PhD Dissertation (1-16).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for credit. Prerequisite(s): admission to doctoral aspirant status.

**ME 990. Advanced Independent Study (1-16).**

Arranged individual, independent study in specialized content areas. Repeatable toward the PhD degree. Prerequisite(s): advanced standing and instructor's consent.

## MGMT - Management

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**MGMT 662. Managing in Diverse Organizations (3).**

Modern organizations face the challenge of managing employees with diverse backgrounds and talents to provide products and services to diverse customers. Course examines workforce diversity from the perspective of maximizing its benefits to group and organizational effectiveness, including developing skills to facilitate the constructive resolution of conflict, encouraging cooperation and teamwork, and enhancing identification with the work unit. *Course includes diversity content*. Prerequisite(s): MGMT 360, junior standing, advanced standing.

**MGMT 680. Making Effective Decisions (3).**

Studies the theories of decision making with attention to the factors of rational decision making and application of quantitative methods, cognitive and motivational influences, intuition, political influences, ethics, and the process of negotiation and decision making in groups along with decision implementation and learning from past decisions. Prerequisite(s): MGMT 360, junior standing, advanced standing.

**MGMT 681. Strategic Management (3).**

An analysis of business problems from a strategic management perspective. A capstone course which integrates the functional areas of business, including management, marketing, finance, accounting and production. Discusses both domestic and international policy issues, large and small firms, and various sources of competitive advantage. Prerequisite(s): DS 350, FIN 340, MKT 300, MGMT 360, senior standing, advanced standing.

**MGMT 690. Seminar in Selected Topics (1-5).**

Repeatable for credit with departmental consent. Prerequisite(s): junior standing, advanced standing.

**MGMT 690N. How to Manage a Remote (Distributed) Workforce (3).**

The course addresses part-time and full-time remote workers, distributed work groups and virtual teams. Topics include: What is the current and future status of remote workforces? What are the benefits to employers and employees? How to communicate and collaborate with remote workers. What engages remote workers? How to measure work product and accountability. How to create trust in a virtual environment. How to handle distractions.

**MGMT 750. Workshop in Management (1-4).**

Prerequisite(s): junior standing.

**MGMT 803. Business Decision Making and Analysis (3).**

A study of business decision making and problem solving methodologies including problem definition, research design, data gathering techniques, analytical techniques, reporting strategies and communication issues. Prerequisite(s): ECON 231 or equivalent, MBA 801 or equivalent.

**MGMT 862. Organizational Behavior (3).**

The study of individual and group behavior as it impacts organizational effectiveness and employee well-being. Applies concepts such as motivation, personality, job attitudes, interpersonal relations, teams, organizational culture and leadership/influence to organizational settings, emphasizing integration and application of concepts. Prerequisite(s): MBA 801 or equivalent.

**MGMT 885. Advanced Strategic Management (3).**

An analysis of business problems from a strategic perspective. Builds on prior coursework to focus on a firm's ability to develop a sustainable competitive advantage. Firms studied represent a broad range of manufacturing and service, global and domestic, entrepreneurial and mature issues. Prerequisite(s): to be taken during last semester of student's program, or departmental consent.

**MGMT 885G. Global Strategic Management (3).**

This course draws from the knowledge base that students accumulate in their accounting, economics, finance, management, operations, IT, and marketing classes. Knowledge from all the business disciplines and students' "real world" experiences are integrated in the course. The course emphasizes strategy formulation and implementation. The perspective taken is that of an organization's general manager. The general manager may be a corporate CEO, a divisional chief executive, the head of an operating unit, or an owner/manager of a small business. This focus will be beneficial to both those that will function as general managers, and those that are and will be functional specialists. Any organizational position requires successful coordination and integration of activities and decisions to achieve organizational goals. Therefore, a thorough understanding of strategic issues allows functional managers to perform their tasks better.

**MGMT 890. Seminar Special Topics (1-3).**

Repeatable for credit with departmental consent.

**MGMT 891. Directed Studies (1-5).**

Prerequisite(s): departmental consent.

## MIS - Management Information Systems

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**MIS 600. Database Management Systems (3).**

Introduces various methodologies for conceptual data modeling including entity-relationship data modeling and logical database design. Covers relational database management systems, the SQL standard and data administration issues. Students obtain hands-on development with SQL servers in a client/server environment through a required database programming project. Covers topics of data warehousing, data mining, distributed database management and emerging topics in database areas. Prerequisite(s): BADM 161, 162 and 163 with a grade of C+ (2.300) or better.

**MIS 605. Systems Analysis and Design (3).**

Introduces various methodologies for systems analysis, design and implementation. Examines application development in the context of the overall MIS master planning effort; examines techniques related to business process engineering. Uses a real-life project as the vehicle to put into practice tools and techniques related to interviewing, cost/benefit analysis, computer-aided software engineering, software project management and system documentation. Prerequisite(s): junior standing, advanced standing.

**MIS 610. Dynamic Web Programming (3).**

Uses ASP.NET as the programming tool to teach Web application development. Includes HTML forms, server objects, and SQL-based data sources for developing interactive and dynamic Web applications within a server-based scripting environment. Covers advanced topics such as ADO and implementing security in Web environments. Prerequisite(s): MIS 310, 600 each with a grade of C+ (2.300) or better, junior standing, advanced standing.

**MIS 611. Topics in Computer Networking (3).**

Selected data communications and networking topics are examined in greater detail and depth. Students study the design, configuration, implementation, maintenance, management, troubleshooting and evaluation of selected networking technologies and software. Time is devoted to both concepts and hands-on exercises. Prerequisite(s): junior standing, advanced standing.

**MIS 612. Fundamentals of Cloud Computing (3).**

The cloud market is rapidly evolving, and with many technologies available for cloud, it is a difficult task for IT professionals to make decisions for their companies about how to move to cloud. In this course, students learn the complete basics of the cloud ecosystem, explore applications in the cloud, and receive a detailed overview of cloud platforms including Amazon Web Services and Microsoft Azure. By the end of this course, students know what cloud computing is all about and are ready to apply that knowledge to solve real world case studies and scenarios. Prerequisite(s): junior standing, advanced standing.

**MIS 615. Advanced Business Application Development (3).**

Presents advanced concepts and techniques for business problem solving by developing software applications using a contemporary business programming language. Special emphasis is placed on object-oriented programming approach. Topics include developing classes, using a multi-tiered approach toward application development, establishing database connection, working with data tables, and database processing. Prerequisite(s): MIS 310 with a grade of C+ (2.300) or better, junior standing, advanced standing.

**MIS 690. Seminar in Selected Topics (1-3).**

Repeatable for credit with departmental consent. Prerequisite(s): senior standing, departmental consent, advanced standing.

**MIS 696. Management of the IS Function (3).**

Addresses the issues of managing the information systems (IS) function. Includes the role of IS as a corporate entity, developing a strategic plan for IT investments, organizing the IS department, IS personnel management, IS project management, the role of IS as a user-support entity, auditing the IS function and emerging issues in managing the IS department. Pre- or corequisite(s): MIS 605, junior standing, advanced standing.

**MIS 750. Business Intelligence and Analytics (3).**

Introduces design and implementation of business intelligence systems for tactical, managerial and strategic level decision making. Addresses how organizational data and analytics support business performance management. Prepares managers for developing and implementing digital performance dashboards to monitor business processes and make informed decisions. Replaces MIS 650 effective fall 2013.

**MIS 874. Management Information Systems (3).**

Explores the link between business strategy and information systems strategy. Addresses opportunities, organizational implications and issues faced by today's managers when investing in new information systems. Equips today's managers with an understanding of the potential of information systems for value creation, while recognizing the uncertainties associated with it. Provides the necessary know-how

to managers in using information systems for creating sustainable competitive advantages.

**MIS 884. Database Planning & Management (3).**

Prepares students to deal with issues in planning and managing organization-wide integrated databases. Emphasizes logical database design and relational database implementation. Includes SQL, assuring database integrity, database conversion, database administration and data management.

**MIS 890. Seminar in Special Topics (1-3).**

Repeatable for credit with departmental consent.

**MIS 891. Directed Study (1-3).**

Individual study of various aspects and issues in information technology. Repeatable for credit with departmental consent.

## MKT - Marketing

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**MKT 601. International Marketing (3).**

Cross-listed as IB 601. Problems and procedures of marketing in foreign countries. Includes the effects of foreign cultures and marketing systems on the design of marketing programs. *Course includes diversity content*. Prerequisite(s): MKT 300 with a minimum grade of C+ (2.300) or better, and MKT 405.

**MKT 607. Promotion Management (3).**

An analysis of all issues involved with the promotion of an organization and its products or services. Students develop coordinated marketing strategies in the areas of advertising, personal sales, public relations and special promotional activities such as direct marketing, interactive media and sales promotions. Prerequisite(s): MKT 300 with a minimum grade of C+ (2.300), MKT 405.

**MKT 608. Selling and Sales Force Management (3).**

Cross-listed as ENTR 608. Analysis of current behavioral concepts of personal selling and the problems and policies involved in managing a sales force. Prerequisite(s): MKT 300 with a grade of C+ (2.300) or better, MKT 405.

**MKT 609. Marketing Programs (3).**

Studies all the aspects of the marketing mix that are integrated to make an effective and coordinated marketing program. Prerequisite(s): MKT 300 with a grade of C+ (2.300) or better, 6 additional hours of marketing, junior standing, advanced standing.

**MKT 690. Seminar in Selected Topics (1-5).**

Repeatable for credit with instructor's consent. Prerequisite(s): junior standing, advanced standing.

**MKT 690G. Online Branding (3).**

Provides students with a strategic overview of the digital environment and the role of digital within the overall marketing strategy of an organization. For undergraduate credit only.

**MKT 706. Seminar in New Product and Technology Development (3).**

Cross-listed as ENTR 706. Provides a form to the function of idea commercialization. Examines the product development practices of successful, innovative companies and focuses on how customer needs can be translated into products and innovations. Students explore idea generation, market validation, prototype development, product concept testing, product launch strategies, postlaunch product evaluation, and managing innovative teams. Students apply learning through developing and testing a product idea that solves a customer problem.

**MKT 750. Workshop in Marketing (1-4).**

Prerequisite(s): junior standing.

**MKT 750A. Digital Marketing (3).**

This course provides students with a strategic overview of the digital environment and the role of digital within the overall marketing strategy of an organization. The rapid pace of change within the technology sector requires managers to be critical thinkers more than ever before. Therefore, this course focuses on fundamental concepts, not fads or the latest trending app. The goal is to learn how to evaluate the tools that are available and choose the ones that will achieve the marketing objectives most effectively. This course is about learning to be good at marketing, not coding.

**MKT 801. Marketing Management (3).**

Develops an understanding of the difference between a sales/marketing department and a marketing orientation. Emphasizes the integral role of a marketing orientation throughout the modern organization. Prerequisite(s): MBA 801.

**MKT 803. Marketing Analysis (3).**

An application of the scientific method to the design and implementation of research procedures that support the need for management decision making, planning and strategy development in the marketplace. Prerequisite(s): MBA 801 or equivalent.

**MKT 805. Consumer Decision-making Process (3).**

MKT 805. Consumer Decision Processes (3). An examination of different aspects of the behavior of consumers and of the factors that help explain their behavior. Includes an analysis of current concepts and models. Prerequisite(s): MBA 801 or instructor's consent.

**MKT 890. Seminar in Special Topics (1-3).**

Repeatable for credit with instructor's consent.

**MKT 891. Directed Studies (1-5).**

Prerequisite(s): departmental consent.

## MUSA - Applied Music

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**MUSA 712. Applied Music Instruction for Nonmajors (2).**

Basic applied instruction for persons who are not active in a music degree program. May not be used to fulfill music degree requirements. Repeatable for credit.

**MUSA 712A. Applied Music Instruction for Nonmajors – Bassoon (1-2).**

Basic applied instruction for persons who are not active in a music degree program. May not be used to fulfill music degree requirements. Repeatable for credit.

**MUSA 712B. Applied Music Instruction for Nonmajors – Cello (2).**

Basic applied instruction for persons who are not active in a music degree program. May not be used to fulfill music degree requirements. Repeatable for credit.

**MUSA 712C. Applied Music Instruction for Nonmajors – Clarinet (1-2).**

Basic applied instruction for persons who are not active in a music degree program. May not be used to fulfill music degree requirements. Repeatable for credit.

**MUSA 712D. Applied Music Instruction for Nonmajors – Euphonium (1-2).**

Basic applied instruction for persons who are not active in a music degree program. May not be used to fulfill music degree requirements. Repeatable for credit.

**MUSA 712E. Applied Music Instruction for Nonmajors – Flute (1-2).**

Basic applied instruction for persons who are not active in a music degree program. May not be used to fulfill music degree requirements. Repeatable for credit.

**MUSA 712F. Applied Music Instruction for Nonmajors – French Horn (1-2).**

Basic applied instruction for persons who are not active in a music degree program. May not be used to fulfill music degree requirements. Repeatable for credit.

**MUSA 712G. Applied Music Instruction for Nonmajors – Classical Guitar (2).**

Basic applied instruction for persons who are not active in a music degree program. May not be used to fulfill music degree requirements. Repeatable for credit.

**MUSA 712J. Applied Music Instruction for Nonmajors – Guitar (1-2).**

Basic applied instruction for persons who are not active in a music degree program. May not be used to fulfill music degree requirements. Repeatable for credit.

**MUSA 712K. Applied Music Instruction for Nonmajors – Harp (1-2).**

Basic applied instruction for persons who are not active in a music degree program. May not be used to fulfill music degree requirements. Repeatable for credit.

**MUSA 712L. Applied Music Instruction for Nonmajors – Oboe (1-2).**

Basic applied instruction for persons who are not active in a music degree program. May not be used to fulfill music degree requirements. Repeatable for credit.

**MUSA 712M. Applied Music Instruction for Nonmajors – Organ (1-2).**

Basic applied instruction for persons who are not active in a music degree program. May not be used to fulfill music degree requirements. Repeatable for credit.

**MUSA 712N. Applied Music Instruction for Nonmajors – Percussion (1-2).**

Basic applied instruction for persons who are not active in a music degree program. May not be used to fulfill music degree requirements. Repeatable for credit.

**MUSA 712P. Applied Music Instruction for Nonmajors – Piano (1-2).**

Basic applied instruction for persons who are not active in a music degree program. May not be used to fulfill music degree requirements. Repeatable for credit.

**MUSA 712Q. Applied Music Instruction for Nonmajors – Viola da Gamba (1-2).**

Basic applied instruction for persons who are not active in a music degree program. May not be used to fulfill music degree requirements. Repeatable for credit.

**MUSA 712S. Applied Music Instruction for Nonmajors – Trombone (1-2).**

Basic applied instruction for persons who are not active in a music degree program. May not be used to fulfill music degree requirements. Repeatable for credit.

**MUSA 712T. Applied Music Instruction for Nonmajors – Trumpet (1-2).**

Basic applied instruction for persons who are not active in a music degree program. May not be used to fulfill music degree requirements. Repeatable for credit.

**MUSA 712U. Applied Music Instruction for Nonmajors – Tuba (1-2).**

Basic applied instruction for persons who are not active in a music degree program. May not be used to fulfill music degree requirements. Repeatable for credit.

**MUSA 712V. Applied Music Instruction for Nonmajors – Viola (1-2).**

Basic applied instruction for persons who are not active in a music degree program. May not be used to fulfill music degree requirements. Repeatable for credit.

**MUSA 712W. Applied Music Instruction for Nonmajors – Violin (1-2).**

Basic applied instruction for persons who are not active in a music degree program. May not be used to fulfill music degree requirements. Repeatable for credit.

**MUSA 712X. Applied Music Instruction for Nonmajors – Saxophone (1-2).**

Basic applied instruction for persons who are not active in a music degree program. May not be used to fulfill music degree requirements. Repeatable for credit.

**MUSA 712Y. Applied Music Instruction for Nonmajors – Voice (1-2).**

Basic applied instruction for persons who are not active in a music degree program. May not be used to fulfill music degree requirements. Repeatable for credit.

**MUSA 712Z. Applied Music Instruction for Nonmajors – Electric Bass (1-2).**

Basic applied instruction for persons who are not active in a music degree program. May not be used to fulfill music degree requirements. Repeatable for credit.

**MUSA 731A. Applied Music Instruction for Majors - Bassoon (1).**  
For majors only. Study on secondary instruments. Basic instruction. Repeatable for credit. Graduate.

**MUSA 731B. Applied Music Instruction for Majors - Cello (1).**  
For majors only. Study on secondary instruments. Basic instruction. Repeatable for credit. Graduate.

**MUSA 731C. Applied Music Instruction for Majors - Clarinet (1).**  
For majors only. Study on secondary instruments. Basic instruction. Repeatable for credit. Graduate.

**MUSA 731D. Applied Music Instruction for Majors - Euphonium (1).**  
For majors only. Study on secondary instruments. Basic instruction. Repeatable for credit. Graduate.

**MUSA 731E. Applied Music Instruction for Majors - Flute (1).**  
For majors only. Study on secondary instruments. Basic instruction. Repeatable for credit. Graduate.



**MUSA 734A. Applied Music Instruction for Majors - Bassoon (4).**  
For performance and pedagogy majors or students preparing for master's degree recitals only. Repeatable for credit. Graduate.

**MUSA 734B. Applied Music Instruction for Majors - Cello (4).**  
For performance and pedagogy majors or students preparing for master's degree recitals only. Repeatable for credit. Graduate.

**MUSA 734C. Applied Music Instruction for Majors - Clarinet (4).**  
For performance and pedagogy majors or students preparing for master's degree recitals only. Repeatable for credit. Graduate.

**MUSA 734D. Applied Music Instruction for Majors - Euphonium (4).**  
For performance and pedagogy majors or students preparing for master's degree recitals only. Repeatable for credit. Graduate.

**MUSA 734E. Applied Music Instruction for Majors - Flute (4).**  
For performance and pedagogy majors or students preparing for master's degree recitals only. Repeatable for credit. Graduate.

**MUSA 734F. Applied Music Instruction for Majors - French Horn (4).**  
For performance and pedagogy majors or students preparing for master's degree recitals only. Repeatable for credit. Graduate.

**MUSA 734J. Applied Music Instruction for Majors - Guitar (4).**  
For performance and pedagogy majors or students preparing for master's degree recitals only. Repeatable for credit. Graduate.

**MUSA 734K. Applied Music Instruction for Majors - Harp (4).**  
For performance and pedagogy majors or students preparing for master's degree recitals only. Repeatable for credit. Graduate.

**MUSA 734L. Applied Music Instruction for Majors - Oboe (4).**  
For performance and pedagogy majors or students preparing for master's degree recitals only. Repeatable for credit. Graduate.

**MUSA 734M. Applied Music Instruction for Majors - Organ (4).**  
For performance and pedagogy majors or students preparing for master's degree recitals only. Repeatable for credit. Graduate.

**MUSA 734N. Applied Music Instruction for Majors - Percussion (4).**  
For performance and pedagogy majors or students preparing for master's degree recitals only. Repeatable for credit. Graduate.

**MUSA 734P. Applied Music Instruction for Majors - Piano (4).**  
For performance and pedagogy majors or students preparing for master's degree recitals only. Repeatable for credit. Graduate.

**MUSA 734R. Applied Music Instruction for Majors - String Bass (4).**  
For performance and pedagogy majors or students preparing for master's degree recitals only. Repeatable for credit. Graduate.

**MUSA 734S. Applied Music Instruction for Majors - Trombone (4).**  
For performance and pedagogy majors or students preparing for master's degree recitals only. Repeatable for credit. Graduate.

**MUSA 734T. Applied Music Instruction for Majors - Trumpet (4).**  
For performance and pedagogy majors or students preparing for master's degree recitals only. Repeatable for credit. Graduate.

**MUSA 734U. Applied Music Instruction for Majors - Tuba (4).**  
For performance and pedagogy majors or students preparing for master's degree recitals only. Repeatable for credit. Graduate.

**MUSA 734V. Applied Music Instruction for Majors - Viola (4).**  
For performance and pedagogy majors or students preparing for master's degree recitals only. Repeatable for credit. Graduate.

**MUSA 734W. Applied Music Instruction for Majors - Violin (4).**  
For performance and pedagogy majors or students preparing for master's degree recitals only. Repeatable for credit. Graduate.

**MUSA 734X. Applied Music Instruction for Majors - Saxophone (4).**  
For performance and pedagogy majors or students preparing for master's degree recitals only. Repeatable for credit. Graduate.

**MUSA 734Y. Applied Music Instruction for Majors - Voice (4).**  
For performance and pedagogy majors or students preparing for master's degree recitals only. Repeatable for credit. Graduate.

**MUSA 734Z. Applied Music Instruction for Majors - Electric Bass (4).**  
For performance and pedagogy majors or students preparing for master's degree recitals only. Repeatable for credit. Graduate.

## MUSC - Musicology Composition

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**MUSC 523. Form And Analysis (2).**  
Extensive analysis of the forms and formal processes of musical literature. Prerequisite(s): MUSC 228.

**MUSC 531. Introduction to Electronic Music (2).**  
Basic techniques of electronic music. Directed toward musicians who wish to use the electronic medium in teaching, performing or communicating through music in any way.

**MUSC 560. Applied Composition (2).**  
Individual study in advanced musical composition emphasizing writing for small ensembles in the smaller forms. For theory-composition majors. Repeatable for credit. Prerequisite(s): MUSC 260 and consent of theory-composition area faculty and musicology-composition coordinator, to continue as a theory-composition major.

**MUSC 561. 18th Century Counterpoint (2).**  
Contrapuntal devices of the 18th century as found in the works of J.S. Bach. Prerequisite(s): MUSC 228.

**MUSC 587. Organ Literature & Design I (2).**  
Broad survey of the historical eras of organ literature and design. Open to non-organ majors. Prerequisite(s): minimum of two years applied organ study or departmental consent.

**MUSC 588. Organ Literature & Design II (2).**  
Broad survey of the historical eras of organ literature and design. Open to non-organ majors. Prerequisite(s): minimum of two years applied organ study or departmental consent.

**MUSC 616. Symphonic Literature (3).**  
An advanced course in orchestral literature covering the development of the symphonic music from Baroque to the present day. Designed primarily for music majors who have already had MUSC 334 and 335.

**MUSC 623. Opera Literature (3).**  
A comprehensive survey of Italian, German, French, Russian, English and American opera literature from the 17th century to the present. MUSC 113 is strongly recommended before taking the course. For upper-division or graduate students. Not limited to music majors.

**MUSC 641. Orchestration (2).**  
The study of instrumentation, emphasizing idiomatic scoring for various instrumental combinations with an approach to the problems of full orchestra and band scores. Prerequisite(s): MUSC 227.

**MUSC 660. Applied Composition (2).**

Individual study in musical composition emphasizing writing for both small ensembles and large groups in the larger forms. Repeatable for credit. Prerequisite(s): MUSC 560 and instructor's consent.

**MUSC 671. Chromatic Harmony (2).**

Advanced study of chromatic harmonic materials of all periods with special attention to the 19th century. Emphasizes analysis and creative writing. Prerequisite(s): MUSC 228.

**MUSC 672. Contemporary Techniques (2).**

Advanced study of music from impressionism to the present, emphasizing related literature and creative writing. Prerequisite(s): MUSC 228.

**MUSC 685. String Literature & Materials (2).**

A survey and stylistic analysis of music for solo strings and chamber combinations, beginning with the early Baroque period.

**MUSC 726. Voice Literature (3).**

A comprehensive survey of early Italian arias, French chansons, German lieder, contemporary English songs, and Russian and Spanish literature.

**MUSC 750. Musicology-Composition Workshop (1-4).**

Repeatable for credit. Prerequisite(s): instructor's consent.

**MUSC 753. Choral Literature I (2).**

A historical and stylistic survey of choral literature of the Renaissance and Baroque eras.

**MUSC 754. Choral Literature II (2).**

A historical and stylistic survey of choral literature of the Classical, Romantic and Contemporary eras.

**MUSC 782. Piano Literature I (2).**

Survey of the historical eras of professional piano repertory.

**MUSC 783. Piano Literature II (2).**

Survey of the historical eras of professional piano repertory.

**MUSC 786. Chamber Music Literature I (2).**

Survey of composers, styles and works of chamber music from Baroque to about 1828.

**MUSC 787. Chamber Music Literature II (2).**

Survey of composers, styles and works of chamber music from about 1828 to the present.

**MUSC 790. Special Topics in Music (1-4).**

For individual or group instruction. Repeatable for credit with departmental consent.

**MUSC 830. Seminar in Music Theory (3).**

An analytical study of the materials used in musical composition from antiquity to the present, employing analytical approaches such as Schenker, Hindemith and serial techniques. Develops analytical perspective rather than compositional skills.

**MUSC 832. Topics in Music Analysis (3).**

Develops areas of music theory in relation to analysis. Includes ideas evoking the most interest and considered by the instructor to be of the greatest professional benefit. Prerequisite(s): MUSC 830.

**MUSC 840A. Seminar in the Techniques of Composition (2).**

Examines the nature of compositional techniques through selected works in large ensembles. Prerequisite(s): MUSC 671, 672, 641, or departmental consent.

**MUSC 852. Introduction to Bibliography and Research (3).**

Techniques of research and development of bibliography in music and music education. Course must be elected the first available semester of enrollment in MM or MME programs.

**MUSC 860. Advanced Composition (2).**

Original work in the large forms and a continuation and expansion of MUSC 659-660. Repeatable for credit. Prerequisite(s): MUSC 660 or equivalent.

**MUSC 875. Thesis Research (1-2).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for credit.

**MUSC 876. Thesis (1-2).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for credit.

**MUSC 891. Seminar in Music History pre-1750 (3).**

Explores special topics and conceptual issues in music history and literature before 1750, focusing on the interaction of musical repertoires with society, history and politics. Students are required to engage with primary sources (musical and textual) and musicological literature. Repeatable for credit. Prerequisite(s): MUSC 852 or MUSE 853.

**MUSC 892. Seminar in Music History post-1750 (3).**

Explores special topics and conceptual issues in music history and literature after 1750, focusing on the interaction of musical repertoires with society, history and politics. Students are required to engage with primary sources (musical and textual) and musicological literature. Repeatable for credit. Prerequisite(s): MUSC 852 or MUSE 853.

## MUSE - Music Education

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**MUSE 511. Jazz Pedagogy (2).**

For both music education and music performance majors interested in teaching improvisation, jazz history, and large and small jazz ensembles. Includes a review of current jazz methods and materials, rehearsal techniques for jazz ensembles, how to listen to jazz, lectures by visiting jazz performers, and effective jazz programming. Prerequisite(s): completion of MUSC 228 or instructor's consent.

**MUSE 606. Music Methods for Early Childhood Education (2-3).**

Methods and materials for teaching music in the preschool and kindergarten classroom. Includes the development of the child's musical growth through singing, listening, rhythmic and creative activities; a survey of available materials, and development of playing, singing and conducting skills.

**MUSE 611. Music for Special Education (2).**

Open to upper-division or graduate students and intended for the potential practicing music teacher, classroom teacher or special education teacher. Includes identification of dysfunctioning children and their problems and current theory and practices in special music education. Satisfies the requirement, effective September 1, 1981, that applicants for initial certification or renewal of secondary and/or elementary certification shall present a survey course, or equivalent content from other courses, in the subject area of exceptional children. This provision applies to initial certification and recertification of music teachers only, grades K-12.

**MUSE 617. Literacy Strategies for Content Areas: Music (2).**

Covers principles and strategies used in effective instruction, including vocabulary development and comprehension skills needed to more fully read to learn in content areas. Students receive training to use the six-trait analytical rating guide for assessing writing, which is the method used to score the Kansas state writing assessment. Students develop lessons and assessments appropriate for a comprehensive literacy-based

music program based on national and state music standards representing appropriate and varied music education philosophies. Prerequisite(s): instructor's consent.

**MUSE 686. Marching Band Techniques (2).**

A systematic approach to the marching band with regard to organization, show development, instrumentation, music adaptation, drill construction and script development. Teaches both traditional drill and corps-style marching using manual methods and computer generated graphics. Field observations, films, photographs, and live performances by marching bands complement the class syllabus. Required for all instrumental majors.

**MUSE 732. Instructional Methods in Middle Level/Secondary Music (2).**

Includes administrative structures, the curriculum, adolescent development, teaching as behavior and competencies needed for successful teaching of general, choral and instrumental music for adolescent learners.

**MUSE 750. Music Education Workshop (1-4).**

Repeatable for credit.

**MUSE 750AJ. Technology for the Music Classroom (1).**

Participants are introduced to current trends in educational technology for the music classroom. Teachers gain experience with sound reinforcement tools, recording equipment and software, composition software, and pedagogical tools.

**MUSE 750AK. Instrument Repair for Teachers (1).**

Provides teachers with the information and skills necessary for basic instrument repair in the instrumental classroom. Teachers learn how to identify problems with instruments and make simple repairs.

**MUSE 750AM. Music Theater Wichita (1).**

This course is designed for school teachers who direct or produce music theater, and is in partnership with Music Theater Wichita. The class covers safety in the theatre, how to sew and paint backdrops professionally, how to train students to be good stage managers, and other practical matters around producing a musical. Repeatable for credit.

**MUSE 750Y. Kodaly Training Session (1).**

Provides individually supervised research and application opportunities for the advanced student studying Kodaly music. Repeatable for credit.

**MUSE 761. Kodaly Methods Level One (3).**

Kodály curriculum designed for grades K-1. Transcriptions of 50 folk songs with teaching activities appropriate for young learners. Introduction of music literacy components. Concurrent enrollment with MUSE 762 recommended.

**MUSE 762. Kodaly Solfege Level One (2).**

Includes one- and two-part materials in major and minor tonalities. Demonstrated ability to conduct folk song literature appropriate for beginning singers. Prerequisite(s): prior or concurrent enrollment in MUSE 761.

**MUSE 763. Kodaly Methods Level Two (3).**

Kodály curriculum designed for grades 2-4. Song analysis for 50 additional folk songs and appropriate literacy activities for general music programs. Added emphasis on folk dance and listening lessons for masterworks. Prerequisite(s): MUSE 761, 762 or instructor's consent (concurrent enrollment with MUSE 764 recommended).

**MUSE 764. Kodaly Solfege Level Two (2).**

Adds chromatic, whole tone and modes. Demonstrated ability to conduct folk song literature up to four parts. Prerequisite(s): MUSE 762.

**MUSE 765. Kodaly Methods Level Three (3).**

Kodály curriculum designed for grades 4-12. Expansion of song repertoire with emphasis on activities which develop choral singing independence and music theory skills. Prerequisite(s): MUSE 763, 764 or instructor's consent (concurrent enrollment with MUSE 766 recommended).

**MUSE 766. Kodaly Solfege Level Three (2).**

Includes advanced materials from a variety of literature. Demonstrated ability to conduct expanded literature appropriate for public and private school choral programs. Prerequisite(s): MUSE 762, 764.

**MUSE 767. Kodaly Applications (2).**

Provides individually supervised research and application opportunities for the advanced student who has completed an OAKE endorsed Kodály certification program. Repeatable for credit. Prerequisite(s): MUSE 761, 762, 763, 764, 765, 766, or OAKE endorsed Kodály certification.

**MUSE 781. Cooperative Education (1-3).**

A field placement which integrates coursework with a planned and supervised professional experience designed to complement and enhance the student's academic program. Individualized programs must be formulated with, and approved by, appropriate faculty sponsors and cooperative education coordinators. Repeatable for credit. Note: a maximum of 4 S/U or Cr/NCr hours may be counted toward a graduate degree and must be taken in consultation with the graduate advisor for an approved graduate plan of study. Prerequisite(s): satisfactory academic standing prior to the first job assignment.

**MUSE 790. Special Topics in Music (1-4).**

For individual or group instruction. Individual study enrollment requires departmental consent. Repeatable for credit with departmental consent.

**MUSE 790Z. Chamber Music Pedagogy (2).**

Serves local and regional music communities through a structured chamber music experience led by WSU music performance and music education students. Students work with area band directors to develop a chamber music program appropriate for their students, then serve as coaches to develop the performance level of those students in various chamber music applications, culminating in performances at Solo and Ensemble festivals, school concerts, and other community functions. Future music educators explore skills for teaching chamber music, transferable teaching skills, develop relationships with local music educators, and develop a stronger base of skills for teaching chamber music.

**MUSE 821. Leadership and Administration in Music Education (3).**

Investigates research and strategies in music education relating to communication, classroom management, current trends, and teaching and learning styles. Includes teacher assessments and evaluation issues.

**MUSE 822. Advanced Techniques in Special Music Education (3).**

Studies research literature and trends in special music education. Includes an evaluation of materials and techniques and special projects exploring the development of musical understanding in the dysfunctioning child. Course satisfies the requirement, effective September 1, 1981, that applicants for initial certification or renewal of secondary and/or elementary certification shall present a survey course, or equivalent content from other courses, in the subject area of exceptional children. This provision applies to initial certification and recertification of music teachers only. For special music education MME candidates only. Prerequisite(s): MUSE 611 or instructor's consent.

**MUSE 823. Special Music Education Practicum (3).**

For special music education MME candidates only. Supervised teaching in special education classrooms. A companion course to MUSE 822; gives the MME special education candidate experience in teaching in special education classrooms. Pre- or corequisite(s): MUSE 822.

**MUSE 831. Developing Music Learning (3).**

Focuses on application of music learning theories and aesthetic development for the K–12 classroom. Students study major music methodologies through teaching demonstrations, critical reflections, and curricular planning. Students construct lessons designed to integrate aesthetic and creativity concepts into music teaching for children and youth.

**MUSE 841. Special Project in Music Education (1-3).**

Individually supervised study or research emphasizing the student's personal needs. Repeatable for credit. Prerequisite(s): instructor's consent.

**MUSE 842. Special Project in Music Education (1-3).**

Individually supervised study or research emphasizing the student's personal needs. Repeatable for credit. Prerequisite(s): instructor's consent.

**MUSE 844. Terminal Conducting Project (2).**

Individually supervised project for those accepted for the conducting option in the instrumental or choral emphasis under the MME degree. Repeatable for credit. Prerequisite(s): instructor's and departmental consent.

**MUSE 845A. Seminar in Instrumental Music Education Literature (2).**

Critical analysis of literature for band, orchestra, and small ensembles in elementary and secondary schools. Uses current bibliography. Repeatable for credit.

**MUSE 853. Research Design and Methods (3).**

Includes historical, philosophical, qualitative, quantitative, meta-analysis and action research. Prepares graduate students to reflectively analyze research related to learning theory, curriculum and administrative topics associated with relevant arts education applications. Prerequisite(s): graduate status.

**MUSE 854. Terminal Project in Music Education (2-3).**

Continued application of techniques of research. Requires the completion of a major research project. May be selected as the MME terminal requirement for specified programs. Prerequisite(s): MUSC 852.

**MUSE 855. Psychology of Music (3).**

An overview of music behaviors from a psychological perspective. Relates recent literature concerning human psychoacoustics, melodic, rhythmic, and harmonic perception, and major learning theories to current trends in music education.

**MUSE 871. History and Philosophy of Music Education (3).**

A study of historical trends and contemporary philosophies relevant to music education. Prerequisite(s): MUSE 851.

**MUSE 875. Thesis Research (1-2).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for credit.

**MUSE 876. Thesis (1-2).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for credit.

**MUSP - Music Performance**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**MUSP 571. Essential Somatics for Singers (2).**

Theoretical and practical exploration of somatic education using the teaching of Essential Somatics (based on Thomas Hanna and Moshe Feldenkrais). These teachings inform each individual of their sensory motor amnesia and responses to stress reflexes. This, in turn, releases chronic muscle tensions and allows for freedom in movement and singing. These teachings also inform each individual of how the stress reflexes affect emotional and psychological well-being.

**MUSP 580. Piano Pedagogy (2).**

Primarily the art and science of teaching. Includes observations of master teachers in the university and community.

**MUSP 581. Piano Teaching Materials (2).**

A survey of teaching methods and materials from beginning through early advanced levels.

**MUSP 596. Organ Pedagogy (2).**

An approach to the art and practical aspect of teaching the organ. Includes a survey of teaching and learning methods and graded repertoire. *Course includes diversity content*. Repeatable for credit. Prerequisite(s): minimum of two years of applied organ study or departmental consent.

**MUSP 599. Organ Keyboard Skills, Service Playing and Accompanying (2).**

Refining keyboard, sight-reading and hymn-playing skills as pertaining to the church service. Accompanying with a review of organ literature for the church service, Gregorian chant, harmonization and improvisation. *Course includes diversity content*. Repeatable for credit. Prerequisite(s): minimum of two years of applied organ study or departmental consent.

**MUSP 620. String Pedagogy: Violin and Viola (2).**

Required for violin and viola performance majors. A study of tutorial techniques for violin and viola, including the teaching of mini-lessons for instructor and class critique. Prerequisite(s): violin or viola performance capability or instructor's consent.

**MUSP 625. Voice Pedagogy (2).**

Acquaints the voice major with vocal techniques, concepts and materials of private and class instruction.

**MUSP 651. Advanced Conducting and Score Reading (2).**

Baton technique, score reading and musicianship. Prerequisite(s): MUSP 307 or 308 or equivalent.

**MUSP 680. Woodwind Pedagogy (2).**

A comprehensive study of woodwind instrument techniques, concepts and materials of studio instruction for the advanced student. Includes the teaching of mini-lessons for instructor and class critique. Prerequisite(s): performance capability on a woodwind instrument or instructor's consent.

**MUSP 681. Brass Pedagogy (2).**

A comprehensive study of brass instrument techniques, concepts and materials of studio instruction for the advanced student. Includes the teaching of mini-lessons for instructor and class critique. Prerequisite(s): performance capability on a brass instrument or instructor's consent.

**MUSP 682. Percussion Pedagogy (2).**

A comprehensive study of percussion instrument techniques, concepts and materials of studio instruction for the advanced student. Includes the teaching of mini-lessons for instructor and class critique.

Prerequisite(s): performance capability on percussion instruments or instructor's consent.

**MUSP 691. Advanced Choral Conducting (2).**

A comprehensive study of conducting and rehearsal techniques, analysis, ear training and types of choral composition for the advanced student. Prerequisite(s): MUSP 307 or 308 or equivalent.

**MUSP 707. Piano Repertoire (1).**

Performing and listening experience for piano performance majors. Repeatable for credit.

**MUSP 710B. Wind Ensemble (1).**

An auditioned ensemble comprising the top wind, brass and percussion students enrolled at Wichita State University. The ensemble performs the highest quality literature written for the wind band and often engages soloists and premieres new music. Repeatable for credit. Prerequisite(s): audition required.

**MUSP 711A. Orchestra (1).**

Repeatable for credit. Prerequisite(s): audition required.

**MUSP 711D. ShockerChoir (1).**

Tenor/Bass voiced chorus made up of both music and nonmusic majors. Performs an eclectic mix of classical, folk and popular music, reflecting the diverse musical interests of its members. ShockerChoir performs annual fall and spring concerts, participates in the Candlelight Christmas concert and performs as part of athletic, academic and social functions throughout WSU's campus. ShockerChoir is open to singers campus-wide who desire a quality bass choir experience through meaningful repertoire, collegiality and excellent performance. Repeatable for credit.

**MUSP 711E. Opera Lab (1).**

Provides opportunities for students to perform staged arias, scenes and one act operas. Students who audition for Opera Theatre but are not cast should enroll in Opera Lab. Those interested in stage management, directing and backstage work may also enroll. Repeatable for credit. Audition is required.

**MUSP 711F. Summer Choir (1).**

A nonauditioned ensemble open to all university students and community members. The ensemble sings a wide variety of repertoire representative of composers from the past five centuries. Performs one major concert during their summer season. Repeatable for credit.

**MUSP 711J. Piano Accompanying (1).**

Repeatable for credit. Prerequisite(s): audition required.

**MUSP 711K. Opera Theatre (1).**

Provides the opportunity for students to gain performance experience with a major role in fully staged, high quality productions of a diverse repertory with orchestral accompaniment. Repeatable for credit. Prerequisite(s): audition required.

**MUSP 711L. Madrigal Singers (1).**

Repeatable for credit. Prerequisite(s): audition required.

**MUSP 711M. Jazz Combo/Banda Hispanica (1).**

Coached performing ensemble. Repeatable for credit.

**MUSP 711N. Woodwind Ensemble (1).**

Repeatable for credit. Prerequisite(s): audition required.

**MUSP 711O. Saxophone Quartet (1).**

Repeatable for credit. Prerequisite(s): audition required.

**MUSP 711P. Brass Chamber Ensemble (1).**

Repeatable for credit. Prerequisite(s): audition required.

**MUSP 711R. Percussion Ensemble (1).**

Repeatable for credit. Prerequisite(s): audition required.

**MUSP 711T. Jazz Arts Ensemble 1 (1).**

Repeatable for credit. Prerequisite(s): audition required.

**MUSP 711V. Guitar Ensemble (1).**

Repeatable for credit. Prerequisite(s): audition required.

**MUSP 711X. New Music Ensemble (1).**

Mixed instrumental chamber ensemble that focuses on performing music of living composers and contemporary concert music from the last half century. Instrumentation is flexible, ranging from around three to 20 players, sometimes augmented by electronics, visualization or other performers. Repeatable for credit.

**MUSP 712D. WuChoir (1).**

Treble voiced chorus made up of both music and nonmusic majors. Performs an eclectic mix of classical, folk and popular music, reflecting the diverse musical interests of its members. WuChoir performs annual fall and spring concerts, participates in the Candlelight Christmas concert and performs as part of athletic, academic and social functions throughout WSU's campus. Repeatable for credit.

**MUSP 712F. A Cappella Choir (1).**

Repeatable for credit. Prerequisite(s): audition required.

**MUSP 712K. Opera Theatre (2).**

Provides the opportunity for students to gain performance experience with a major role in fully staged, high quality productions of a diverse repertory with orchestral accompaniment. Repeatable for credit. Prerequisite(s): audition required.

**MUSP 712L. Chamber Singers (1).**

Repeatable for credit. Prerequisite(s): audition required.

**MUSP 712S. String Chamber Ensemble (1).**

Repeatable for credit. Prerequisite(s): audition required.

**MUSP 712T. Jazz Arts Ensemble 2 (1).**

Repeatable for credit. Prerequisite(s): audition required.

**MUSP 713B. Symphonic Band (1).**

An auditioned ensemble of approximately 60 musicians open to all university students. Performs full ensemble literature for wind bands ranging from traditional to contemporary styles. Provides playing experiences for both music and nonmusic majors. Repeatable for credit. Prerequisite(s): audition required.

**MUSP 713F. Concert Chorale (1).**

Repeatable for credit. Prerequisite(s): audition required.

**MUSP 714K. Opera Theatre (4).**

Provides the opportunity for students to gain performance experience with a major role in fully staged, high quality productions of a diverse repertory with orchestral accompaniment. Repeatable for credit. Prerequisite(s): audition required.

**MUSP 723. Applied Piano Accompanying (4).**

Individual private study of standard accompaniment literature with preparation of a terminal project recital (either vocal or instrumental). Prerequisite(s): successful completion of two semesters of graduate piano study.

**MUSP 724. Applied Piano Accompanying (4).**

Individual private study of standard accompaniment literature with preparation of a terminal project recital (either vocal or instrumental). Prerequisite(s): successful completion of two semesters of graduate piano study.

**MUSP 725. Voice Pedagogy II (2).**

Builds on the basics explored in Voice Pedagogy, giving particular attention to a deeper understanding of voice science, vocal literature, pedagogical techniques and materials which prepare students to teach

advanced and collegiate students. Prerequisite(s): MUSP 625 or instructor's consent.

**MUSP 760. Group Piano Practicum (2).**

Supervised group piano teaching for graduate students. Prerequisite(s): MUSP 580, 581, or instructor's consent.

**MUSP 761. Studio Piano Practicum (2).**

Supervised studio teaching for graduate students. Prerequisite(s): MUSP 580, 581, or instructor's consent.

**MUSP 762. Opera Styles (2).**

A comprehensive study of the performance styles and practices in operatic singing, ranging from the 17th century to the present. Prerequisite(s): instructor's consent.

**MUSP 773. Acting For Singers (3).**

Studies the external and internal techniques of acting for the singer, emphasizing characterization and development of a role, to ensure that students have the necessary understanding and skills to integrate the acting process while singing. Prerequisite(s): instructor's consent.

**MUSP 781. Cooperative Education (1-4).**

A field placement which integrates coursework with a planned and supervised professional experience designed to complement and enhance the student's academic program. Repeatable for credit.

**MUSP 781I. Noncredit Internship (0).**

A field placement which integrates coursework with a planned and supervised professional experience designed to complement and enhance the student's academic program. Repeatable for credit.

**MUSP 790. Special Topics in Music (1-2).**

For individual or group instruction. Repeatable for credit with departmental consent.

**MUSP 790AA. Cultivating Excellent Performances (2).**

Through weekly exercises, reading and class participation we will explore techniques to strengthen your focus and creative energy for performances. Students will perform frequently in class and be given opportunities to practice methods that potentially enhance practicing, preparation, productivity and the quality of live performance.

**MUSP 790AE. Orchestral Excerpts for Viola (1-2).**

This course will introduce and prepare cellists for professional orchestral auditions. Students will study, prepare and perform standard cello orchestral excerpts. Two Mock Juries will provide an opportunity for students to experience an actual audition with detailed and immediate feedback from multiple performance area faculty.

**MUSP 790AF. Orchestral Excerpts for Cello (2).**

This course will introduce and prepare cellists for professional orchestral auditions. Students will study, prepare and perform standard cello orchestral excerpts. Two Mock Juries will provide an opportunity for students to experience an actual audition with detailed and immediate feedback from multiple performance area faculty.

**MUSP 790AG. Graduate Aural Skills Concepts and Practical Applications for the Performer (2).**

Intensive independent study in aural skills/theory meant to broaden the comprehension of the graduate (MM or MME) music major. Class has three main components: (1) a graduate review of all basic aural skills concepts such as singing-at-site — in solfeggio — the Robert W. Ottman (9th Ed. Pearson) melodies from later chapters, as well as the professor's own composed melodies, (2) defining harmonic contexts by singing chord structures as they relate to vertical intervals (i.e., V7 chord, ii6 chords, in a harmonic context related to one's melodic instrument). Voice-leading is examined in this section, as well. Vertical and horizontal application of harmony is critical to developing one's ear as a performer and as an ensemble member. Finally, (3) the

examination of rhythmic structures, rhythmic solmization to better integrate one's playing with one's ear. This may also include an examination of formal structures in music (e.g., sonata form, etc.) that can be identified aurally.

**MUSP 790AI. Essential Somatics for Singers (1).**

This course is a theoretical and practical exploration of somatic education using the teachings of Essential Somatics (based on Thomas Hanna and Moshe Feldenkrais). These teachings will inform each individual of their sensory motor amnesia and responses to stress reflexes. This will, in turn, release chronic muscle tensions and allow for freedom in movement and singing.

**MUSP 790E. Musical Theatre and Opera Audition (3).**

Cross-listed as THEA 630. Practicum course develops techniques and audition repertory singers need to gain professional employment and/or successfully compete for placement in advanced training programs. Also covers the business skills necessary to a professional career, and brings students into contact with professional guest artists who can provide additional insight and contacts. Prerequisite(s): instructor's consent.

**MUSP 790P. Special Topics: Pedagogy (1-2).**

For individual or group instruction. Repeatable for credit with departmental consent. For Graduate/Undergraduate Credit. (P: Piano)

**MUSP 790Q. Special Topics in Music and Foreign Language (1-5).**

Allows undergraduate and graduate students to take courses in the modern foreign languages together with individualized instruction in the translation and diction of poetical texts set to music. Course may be used to satisfy the foreign language requirement of the Bachelor of Music in performance — vocal emphasis. Repeatable for credit. Prerequisite(s): departmental consent.

**MUSP 841. Special Project in Music (1-3).**

Individually supervised study or research emphasizing the personal needs of the student. Repeatable for credit. Prerequisite(s): instructor's consent.

**MUSP 842. Special Project in Music (1-3).**

Individually supervised study or research emphasizing the personal needs of the student. Repeatable for credit. Prerequisite(s): instructor's consent.

**MUSP 843. Piano Pedagogy Seminar (2).**

Variable topics, such as (1) advanced techniques in class piano or private piano (college curriculums); (2) class piano in early childhood; (3) class piano for leisure-age students; (4) class piano in public (or private) schools, extending the advanced preparation of piano pedagogy students as needed. Repeatable for credit. Prerequisite(s): MUSP 580, or instructor's consent.

**MUSP 871. Graduate Accompanying Recital: Vocal (1).**

Required for MM piano majors, vocal accompanying emphasis. Prerequisite(s): the student must have completed 18 hours toward the degree, including two semesters of applied piano and be enrolled in MUSP 723 or 724.

**MUSP 872. Graduate Accompanying Recital: Instrumental (1).**

Required for MM piano majors, instrumental accompanying emphasis. Prerequisite(s): the student must have completed 18 hours toward the degree, including two semesters of applied piano and be enrolled in MUSP 723 or 724.

**MUSP 873. Graduate Recital (1-2).**

Performance of a full recital featuring the chief performing medium. Prerequisite(s): consent of instructors in applied area.

**MUSP 874. Professional In-Service Presentation Project (1-2).**

Planning, organizing and presenting a three-hour in-service presentation (workshop) to in-service private piano teachers, perhaps in conjunction with an established community piano teacher's league, etc. Available as a terminal requirement alternative (in lieu of performance recital) in the Master of Music—piano pedagogy emphasis. Students approved for this terminal requirement option are also required to perform a major piano work, prepared at acceptable recital level, during semester jury examination within the final year (two semesters) of the degree program. Requires approval of piano performance area faculty. Prerequisite(s): departmental consent.

**NURS - Nursing**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**NURS 701. Advanced Health Assessment (2).**

Designed to assist students to refine history taking, psychosocial assessment and physical assessment skills. Focuses on assessment of individuals throughout the life span. Emphasis is placed on detailed health history taking, differentiation, interpretation and documentation of normal and abnormal findings. Course includes lecture, discussion, and integrated history-taking and physical assessment assignments. May be taken concurrently with or prior to NURS 702. Prerequisite(s): admission to graduate nursing program.

**NURS 702. Advanced Health Assessment Laboratory (1).**

Companion course for NURS 701. Apply history-taking and assessment skills within a laboratory setting. Emphasizes differentiation, interpretation and documentation of normal and abnormal findings. Requires a complete history and physical examination of a client. Prerequisite(s): admission to graduate nursing program. Pre- or corequisite(s): NURS 701 (NURS 702 must be taken within one year of completing NURS 701).

**NURS 703. Theoretical Foundations of Advanced Nursing Practice (3).**

Emphasizes the role of theory in developing knowledge-based advanced nursing practice. Relationships among theory, research and practice are addressed. The application of selected theories, models and frameworks to advanced practice nursing is discussed. Prerequisite(s): admission to graduate nursing program.

**NURS 715. Advanced Nursing Practice Roles (1).**

Designed for the student preparing for advanced practice nursing. The historical development of the advanced practice role, as well as current and future professional and legal descriptions of advanced practice nursing roles is explored. Prerequisite(s): admission to graduate nursing program.

**NURS 720. Human Lactation (2-4).**

For the graduate student preparing for practice as a lactation consultant. Provides an in-depth focus on the anatomical and physiological basis of lactation and breastfeeding. Explores factors that impact maintenance of health during lactation and clinical decisions for disease prevention. Addresses preparation for lactation consultant certification. Students work on case studies, develop a paper for publication and take a final examination via the Internet. Open to non-nursing majors. Prerequisite(s): admission to graduate program.

**NURS 723. Foundations of Nursing Education (3).**

Assists the student to explore theoretical and practical aspects of curriculum development, and teaching of nursing in higher education and continuing education. Prerequisite(s): departmental consent.

**NURS 724. Nursing Education Practicum (1-3).**

Students, under professional guidance, become directly involved in clinical and classroom teaching, curriculum development and participation in other faculty functions in higher education and continuing education, or patient education. A seminar and directed observation of a master teacher accompanies the field experience. Repeatable for a total of 6 credits hours. Prerequisite(s): departmental consent. Pre- or corequisite(s): NURS 723.

**NURS 726. Common Dermatological Conditions in Primary Care (1-3).**

Interactive online course guides students through an instructional program with a profile of common dermatological conditions encountered in primary care. Information is presented in brief case scenarios; students identify the condition. Resource links are available for in-depth study of each condition. For clinical use, patient education links are provided. Cases give the didactic information needed to make clinical decisions. Prerequisite(s): senior rule or admission to the Graduate School or instructor's consent.

**NURS 727. Low Back Pain (1-3).**

Interactive online course guides students through an instructional program based on the low back pain guidelines from the Agency for Health Care Policy and Research. Case study format stimulates critical thinking. Linked information gives information needed to make clinical decisions. Prerequisite(s): senior rule or admission to the Graduate School or instructor's consent.

**NURS 728. Advanced Practice Technology and Skills (3).**

Focuses on application of clinical skills, advanced health assessment, and interpretation of technologies used in a variety of clinical settings. Students practice these skills in laboratory and clinical settings. Students practice history-taking and physical examination, with emphasis on differentiation, interpretation and documentation of normal and abnormal findings. A 40-hour precepted experience is included.

**NURS 733. Diabetes Mellitus Nursing (3).**

Exploration of clinical theories; identifies and studies appropriate nursing systems for clients with diabetes mellitus. Emphasizes attaining and maintaining optimal levels of functioning and the psychological adjustment of the client and family to a potentially devastating disease. Open to non-nursing majors.

**NURS 750. Workshops in Nursing (1-4).**

An opportunity for intensive study of special topics related to nursing practice, education or research. Open to nonnursing majors.

**NURS 757. Teaching Strategies for Nursing Education (3).**

Analysis of teaching strategies for the nurse educator to accommodate the changing health care scene. Teaching methods, including technology appropriate for a variety of learners, and learning environments are discussed. Roles of the nurse educator across the scope of learning environments are investigated: nursing education, in-service and patients/clients/families. Current issues and trends influencing nursing education are explored. The course focuses on the use of research-based evidence to guide teaching strategies. May be taken by graduate nursing students or undergraduate nursing students with senior standing. Pre- or corequisite(s): NURS 723.

**NURS 793. Advanced Pathophysiology I (4).**

Explores in depth scientific knowledge base relevant to selected pathophysiological states confronted in advanced nursing practice. Provides the basis for the foundation of clinical decisions related to diagnostic tests and the initiation of therapeutic regimens. Age-specific and developmental alterations are correlated with clinical diagnosis and management. Application is made through age-appropriate examples

and case studies. Prerequisite(s): admission to graduate nursing program or instructor's consent.

**NURS 795A. Applied Drug Therapy I (3).**

Discusses the clinical application of specific categories of drugs commonly encountered in primary care settings. Explains the use of protocols, prescription writing, and the ethical/legal and economic issues surrounding the advanced nurse's role in prescribing and monitoring pharmacologic therapies in the ambulatory setting. Discusses factors such as age-appropriate content related to pharmacokinetics, dosages, expected outcomes and side effects of the drugs. Addresses first line versus second line drugs, alternate drugs, drug interactions, adjusting drug dosages, patient education and compliance issues related to drug therapy. Explores the nurse practitioner's role and responsibility related to data collection, problem identification and consultation with the physician. Application is made through age-appropriate case studies. Prerequisite(s): admission to graduate nursing program and departmental consent.

**NURS 795B. Applied Drug Therapy II (3).**

Expands the clinical application of drug therapy in the primary care setting. Employs evidence-based medicine to determine the proper management of the various disease states discussed. Application is made through age appropriate case studies including complex patients. Prerequisite(s): NURS 795A, admission to graduate nursing program.

**NURS 796. Nursing Practicum in Special Settings (1-6).**

Opportunity for directed practice in various settings including clinical specialties, nursing administration, nursing education and consultation. Prerequisite(s): departmental consent.

**NURS 799. Directed Readings in Nursing (1-2).**

Student engages in critical search of the literature in areas related to the profession and practice of nursing. Prerequisite(s): departmental consent.

**NURS 801. Health Care Systems: Policy and Politics (3).**

Designed to provide an overview of policies that make up the U.S. health system, and the influence policy has on advanced practice nursing and health care. Focuses on how to analyze policies relevant to advanced practice nurses and advocacy strategies, particularly politics, to influence policy implementation and evaluations. Prerequisite(s): admission to the graduate nursing program. Prerequisite(s): admission to the graduate nursing program.

**NURS 803. FNP Primary Care I (3).**

Focuses on common health problems seen in individuals and families throughout the life span using a primary care focus. Emphasis on applications of research and theory-based interventions appropriate for management by advanced practice registered nurses. Emphasizes strategies and protocols to manage common problems in urban and rural patients, interventions to restore individual and family levels of pre-illness health, and positive behaviors. Prerequisite(s): NURS 728, and admission to the FNP specialization. Corequisite(s): NURS 804, 830, 838.

**NURS 804. FNP Primary Care Practicum I (4).**

Concentrated clinical practicum in a primary care setting that addresses individuals and families throughout the life span within the context of the community. Theory and research used in clinical settings. Health promotion, maintenance and prevention interventions emphasized. Prerequisite(s): NURS 728, admission to the FNP specialization. Corequisite(s): NURS 803, 830, 838.

**NURS 806. Evidence-Based Nursing Practice and Outcomes of Care (3).**

Evidence-based practice is the integration of the best research evidence with clinical expertise and patient values to facilitate clinical decision

making. Focuses on identifying and evaluating evidence for its relevance in nursing practice. Prerequisite(s): admission to the graduate nursing program. Pre- or corequisite(s): NURS 703 or departmental consent.

**NURS 812. Nursing and Health Care Systems Administration Practicum (2-6).**

Practicum in a health care setting; students, under professional guidance, become directly involved in existing leadership, administrative and management systems. Types of experience may include roles in nursing service administration, nursing education, mid-level nursing administration/management, staff development, community health, or other related area as arranged. Repeatable for a total of 6 credit hours. (180 practice hours for 3 credit hours.) Pre- or corequisite(s): departmental consent or 24 hours of graduate work.

**NURS 819. Foundations of Psychiatric/Mental Health Nursing (3).**

Focuses on common mental health problems found in individuals and families throughout the life span. Emphasis on application of theory-based interventions appropriate for management of mental disorders by psychiatric/mental health nurse practitioners. Prerequisite(s): all NP core courses, NURS 854 or departmental consent.

**NURS 822. Psychiatric/Mental Health Nursing Practicum I (4).**

Intensive clinical experience in which students plan, implement and evaluate nurse-therapist strategies with psychiatric patients across the life span. Emphasis is on the performance of individual psychotherapy as well as psychiatric assessment which includes interpretation of relevant data, differential diagnosis and development and implementation of treatment plans. Appropriate interventions to promote the therapeutic process are emphasized. Prerequisite(s): all NP core courses and NURS 854 or departmental consent. Corequisite(s): NURS 822L.

**NURS 824. Advanced Pathophysiology II (2).**

Analyzes the cellular and molecular pathophysiology and management of health problems through the life span. Emphasis is placed on the scientific underpinnings used to enhance clinical decision-making skills including differentiation of disease states. The major themes address normal physiology, pathophysiology, assessment and evaluation of disease states. Prerequisite(s): admission to DNP, completion of at least one clinical course in specialty area.

**NURS 825. Independent Study (1-6).**

Provides opportunity for the student to develop, in collaboration with a school faculty member, objectives and protocols for independent work related to the practice of nursing. Repeatable for credit up to 6 hours. Prerequisite(s): admission to graduate nursing program and departmental consent, NURS 703.

**NURS 826. Evidence-Based Nursing Project I (2).**

The course focus on evidence-based practice and quality improvement initiatives in healthcare. Critical appraisal of evidence is used to inform advanced nursing decision making. Prerequisite(s): NURS 806 or departmental consent.

**NURS 828. Evidence-Based Nursing Project II (2).**

Management of clinical data including data analysis techniques with spreadsheet and statistical manipulation. Students use existing data to determine health care outcomes and to evaluate delivery of care. Extensive computer use in laboratory setting with technical support. Computer literacy is expected. Prerequisite(s): NURS 826 or departmental consent.

**NURS 830. FNP Management and Clinical Application I (1).**

Students engage in extensive clinical case discussion emphasizing pathophysiology principles and clinical management of primary

care common health problems across the life span. Emphasis is on incorporation of theory and evidence-based practice in clinical decision making and problem solving while providing cost-effective care. Prerequisite(s): NURS 728 and admission to the FNP specialization. Corequisite(s): NURS 803, 804, 838.

**NURS 838. FNP Advanced Practice Role I (1).**

Focuses on the application of theoretical models of practice, FNP role, evidence-based nursing practice, outcomes of care, and practice issues. Case discussions emphasize the application of physiologic principles and clinical management of common health problems of primary care populations across the life span. Prerequisite(s): NURS 728 and admission to the FNP specialization. Corequisite(s): NURS 803, 804, 830.

**NURS 840. Pathophysiology and Management of Adult/Older Adult Acute Care Problems I (3).**

First of two courses that examines pathophysiology and management of acute, chronic and multisystem health problems in adult/older adult populations. Emphasizes the scientific underpinnings for clinical decision making and practice issues. Major themes address normal physiology, pathophysiology, age-related changes, assessment, diagnosis, and management of acute, critical, and exacerbation of chronic disease states. Health promotion and disease prevention are emphasized. Prerequisite(s): NURS 793 and admission to ACNP specialization.

**NURS 842. Transition to the ACNP Advanced Practice Role (1).**

Focuses on the application of theoretical models of practice, ACNP role, evidence-based nursing practice, outcomes of care, and practice issues. Case discussions emphasize the application of physiologic principles and clinical management of acute, critical and exacerbation of chronic health problems of adult/older adult populations. Corequisite(s): NURS 840, 874.

**NURS 854. Diagnosis and Management of Mental Disorders (3).**

Explores current diagnostic and psychopharmacological strategies in advanced psychiatric nursing practice. Emphasis is on diagnostic reasoning and the management of mental health problems across the life span. Prerequisite(s): Admission to the graduate nursing program and departmental consent.

**NURS 856. Transition to PMHNP Advanced Practice Role I (1).**

Focuses on the application of theoretical models used in practice, the role of the psychiatric/ mental health nurse practitioner, practice issues, and case scenario presentations with interactive discussions based on the use of established protocols and guidelines. Prerequisite(s): all core courses and NURS 854. Corequisite(s): NURS 819, 822.

**NURS 871. Leadership and Emerging Issues in Nursing (3).**

Covers key current topics for advanced nurses in leadership and direct care roles. Topics in technology, quality improvement, health professional roles, and other emerging areas of interest are discussed and analyzed as they relate to individual and population health and health outcomes. Prerequisite(s): admission to the MSN program or departmental consent.

**NURS 872. Clinical Focus Education Practicum (2-6).**

Advanced clinical nursing experience in which the student develops clinical expertise for a population of interest or a specific role. Experiences are designed to strengthen patient care delivery skills, system assessment and intervention. Repeatable for a total of 6 credit hours. Pre- or Corequisite(s): NURS 723.

**NURS 874. Adult/Older Adult ACNP Practicum I (4).**

A clinical experience that builds on pathophysiology and clinical management coursework, emphasizing evidence-based practice. Students participate in a medical rotation that is supervised by an

ACNP or physician preceptor in the acute care setting. Emphasis is placed on physical assessment, interpretation of data, differential diagnosis, development and implementation of management plans, and performing relevant procedures with adult/older adult populations. Patient and family education, health promotion and prevention are emphasized. Prerequisite(s): NURS 728. Corequisite(s): 840, 842.

**NURS 899. Special Topics (1-3).**

Provides a topic-specific update for those who hold a master's degree in nursing (MN or MSN) and who require additional knowledge in the Doctor of Nursing Practice (DNP) program. Repeatable for credit. Prerequisite(s): admission to the DNP-postmaster's graduate nursing program.

**NURS 899A. Health Care System Policy and Politics Update (1-3).**

Provides an overview and update of U.S. health system policies and how they influence advanced practice nursing. Focuses on how to analyze health policies relevant to advanced practice nurses.

**NURS 899B. Evidence-Based Nurse Practitioner Update (1-3).**

Provides students with an update regarding the use of best research evidence to facilitate decision making in nursing practice.

**NURS 899C. Management of Care Update (1-3).**

Provides a focused update of evidence-based practice for key national and global health issues and conditions.

**NURS 901. Organizational Systems and Leadership (3).**

Focuses on the application of theories of leadership and leadership development in changing and diverse health care organizations. Emphasis is on examining the impact of the art and science of leadership principles and practices on diverse health care organizations. Prerequisite(s): completion of one specialty practicum course or departmental consent.

**NURS 902. Population and Social Determinants of Health (3).**

Provides an analysis of major social variables that affect population health. Students examine health consequences of various social and economic factors. Emphasizes evidence-based practice strategies for populations. Prerequisite(s): completion of one specialty practicum course or departmental consent.

**NURS 903. FNP Primary Care II (3).**

Focuses on complex problems seen in individuals and families through the life span using a primary care focus. Stresses applications of current research and theory-based interventions appropriate for management by advanced practice registered nurses. Emphasizes strategies and protocols to manage complex patient problems in urban and rural patients, interventions to restore individual and family levels of pre-illness health, including secondary and tertiary prevention. Prerequisite(s): NURS 803, 804, 830, 838. Corequisite(s): NURS 904, 905, 906.

**NURS 904. FNP Primary Care Practicum II (4).**

Emphasizes assessment and management of health problems across the life span, based on knowledge of theory and research. Primary care clients with conditions affecting major body systems assessed and managed. Prerequisite(s): NURS 803, 804, 830, 838. Corequisite(s): NURS 903, 905, 906.

**NURS 905. FNP Management and Clinical Application II (2).**

Students engage in extensive discussion and application of the pathophysiology and management of primary care complex health problems in individuals across the life span. Emphasis is on the use of theory and evidence-based practice for clinical decision making and problem solving while providing cost effective care. Prerequisite(s): NURS 803, 804, 830, 838. Corequisite(s): NURS 903, 904, 906.

**NURS 906. Transition to FNP Advanced Practice Role II (1).**

Focuses on collaborative practice, outcomes of care, practice issues, and case discussion. Emphasis is on developing collaborative relationships with other health professionals. Case discussions emphasize the application of physiologic and clinical management of complex health problems in primary care. Prerequisite(s): NURS 803, 804, 830, 838. Corequisite(s): NURS 903, 904, 905.

**NURS 909. Pathophysiology and Management of Adult/Older Adult Acute Care Problems II (3).**

The second of two courses that examine pathophysiology and management of acute, chronic and multisystem health problems in adult/older adult populations. Emphasis is placed on the scientific underpinnings for clinical decision making and practice issues. Major themes address normal physiology, pathophysiology, age-related changes, assessment, diagnosis and management of acute, critical and exacerbation of chronic disease states. Health promotion and disease prevention are emphasized. Prerequisite(s): NURS 793, 840. Corequisite(s): NURS 910, 911.

**NURS 910. Adult/Older Adult ACNP Practicum II (4).**

Advanced clinical experience that is a continuation of NURS 874. Students participate in surgical and/or emergency department rotations supervised by an ACNP or physician preceptor in the acute care setting. Emphasis is placed on physical assessment, interpretation of data, differential diagnosis, development and implementation of management plans, and performing relevant procedures with adult/older adult populations. Patient and family education, health promotion and prevention are emphasized. Prerequisite(s): NURS 842, 874. Corequisite(s): NURS 909, 911.

**NURS 911. Transition to the ACNP Advanced Practice Role II (1).**

Focuses on collaborative practice, outcomes of care, practice issues and case discussion. Emphasis is placed on developing collaborative relationships with other health professionals. Case discussions emphasize the application of physiologic principles and clinical management of acute health problems of adult/older adult populations. Corequisite(s): NURS 909, 910.

**NURS 912. Management of Acute and Critical Problems of Adult/Older Adult Populations (3).**

Examines advanced nursing interventions focused on client stabilization and management of complications in the acutely and critically ill adult/older adult populations. Emphasis is placed on diagnostic reasoning and the management of the adult with complex health problems. Interventions focus on application of advanced practice nursing care to the restoration of health/well-being. Prerequisite(s): NURS 909, 910.

**NURS 921. Complex Issues in Psychiatric/Mental Health Nursing (3).**

Examines management of chronic and multisystem mental health issues across the life span. Focuses on complex mental health problems seen in individuals and families. Application of theory-based interventions appropriate for management by psychiatric/mental health nurse practitioners emphasized. Health promotion and disease prevention emphasized. Prerequisite(s): NURS 819, 822, 856. Corequisite(s): NURS 922, 923.

**NURS 922. Psychiatric/Mental Health Nursing Practicum II (4).**

An intensive clinical experience in which students analyze group processes and initiate and evaluate therapeutic strategies with groups across the life span. Emphasis on the performance of group therapy as well as psychiatric assessment which includes interpretation of relevant data, differential diagnosis, and development and implementation of management plans. Appropriate interventions to promote the group process are emphasized. Prerequisite(s): NURS 819, 822, 856.

**NURS 923. Transition to PMHNP Advanced Practice Role II (1).**

Focuses on the critical analysis of therapeutic strategies used in the role of the psychiatric/mental health nurse practitioner. Prerequisite(s): NURS 819, 822, 856.

**NURS 924. Advanced Pharmacotherapy for Advanced Practice Nursing (3).**

Updates the knowledge base for the advanced practice nurse for more informed prescribing for the complex patient throughout the life span. Presents pharmacokinetics/pharmacodynamics, pharmacogenomics, pharmacoconomics and pharmacoethics as they apply in the clinical setting. Discusses drug development and the use of new drugs in the clinical setting. Facilitates clinical application of this knowledge through case studies, lectures and reviews of the latest medical literature. Prerequisite(s): admission to postmaster's DNP program or nationally certified APRN with program approval.

**NURS 952. Advanced Nursing Practice Preceptorship (3).**

Concentrated clinical practicum in the student's specialization health care setting that emphasizes the management of care for individuals. Students synthesize concepts and principles from previous classes and clinical experiences, applying theoretical and research content to acute, chronic, urgent and/or common health problems. Preceptorship is in a clinical agency appropriate to the student's clinical interests. Prerequisite(s): completion of all core and specialization courses in the NP option, departmental consent.

**NURS 956. Practice Management (2).**

Management and analysis of professional issues including business skills necessary for advanced nursing practice. Emphasizes business practices needed for advanced nursing practice including contract negotiation and strategies for outcomes evaluation. Prerequisite(s): completion of two specialty practicums or departmental consent.

**NURS 959. Evidence-Based Nursing Project III (3).**

Evidence-based project includes needs assessment, problem identification and the development of a project proposal. The student works collaboratively with a graduate nursing faculty member to develop the project for a practice setting. Prerequisite(s): NURS 828 or departmental consent.

**NURS 960. Residency (2-6).**

An extensive, advanced-level learning experience tailored for the student and mentored by at least one graduate nursing faculty member and one other graduate faculty member. The post-baccalaureate DNP student will take a portion of the residency hours (not to exceed 2 hours) as a clinical residency. The final residency hours allow the student to complete and disseminate the results of the project developed in NURS 959. At the end of the residency, the student submits a DNP portfolio including the evidenced-based project manuscript or abstract and other student-authored manuscripts, clinical innovations, critically analyzed case studies, documented advanced nursing practice, evidence of practice management and quality assurance principles, and other scholarly work. Repeatable for a minimum of 6 credit hours, until requirements are met. Prerequisite(s): NURS 952 or departmental consent; postmaster's DNP students must complete all other required courses prior to this course and must be nationally certified in their specialization.

## PA - Physician Assistant

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**PA 525. Special Topics (1-4).**

Lecture/discussion; focuses on a discrete area content relevant to the health disciplines. In-depth study of a particular topic or concept,

including didactic and current research findings and technological advances relevant to the topic. Open to non-majors; requires departmental consent.

**PA 525C. Special Topics 2020 (0).**

Focuses on a discrete area content relevant to the health disciplines. In-depth study of a particular topic or concept, including didactic and current research findings and technological advances relevant to the topic. Open to non-majors. Prerequisite(s): departmental consent.

**PA 700. Clinical Practice I (3).**

Provides advanced theoretical knowledge and skills necessary to obtain an appropriate medical history and physical examination. Includes additional emphasis on the identification of normal and abnormal physical findings. Practice of methods and techniques learned takes place in a faculty-proctored laboratory setting. Opportunities are provided for observation and participation in the medical history and physical examination in inpatient and outpatient settings. Prerequisite(s): admission to PA professional program. Corequisite(s): PA 700L.

**PA 700L. Clinical Practice I Lab (1).**

Compliments PA 700 to provide advanced theoretical knowledge and skills necessary to obtain an appropriate medical history and physical examination. Includes additional emphasis on the identification of normal and abnormal physical findings, interpersonal communication, and patient education. Focuses on practicing methods and techniques within a faculty-proctored laboratory setting. *Course includes diversity content.* Prerequisite(s): admission to PA professional program.

**PA 710. Advanced Pharmacotherapy I (3).**

Discusses clinical applications of selected drug classes commonly prescribed in the primary care setting as well as the follow-up management of common chronic diseases. Discusses pharmacological managements as to pharmacokinetics, dosages, mechanisms of action (at molecular and systemic levels), side effects, drug interactions, contraindications, therapeutic use and expected outcomes. Emphasizes the practical application of this knowledge in various patient populations of all ages as well as rational drug selection and monitoring. Methodology includes lecture presentations, group discussions, clinical case studies, assessment of recent literature, homework assignments, quizzes and exams. Prerequisite(s): admission into physician assistant professional program, or HS 301 and instructor's consent.

**PA 711. Advanced Pharmacotherapy II (3).**

Discusses the clinical application of specific categories of drugs used in the treatment of several common acute and chronic diseases. Presents pharmacokinetics, mechanisms of action, dosages, side effects and monitoring parameters of medications as they are used in these diseases and in various patient populations. Facilitates clinical application of this knowledge through case studies, class discussions and reviews of the latest medical literature. Prerequisite(s): PA 710 and either admission into PA professional program or instructor's consent.

**PA 716. Clinical Laboratory (2).**

Provides foundational and advanced knowledge and skills in the efficient selection and rational interpretation of laboratory tests for the purposes of diagnosing and managing common clinical problems. Appropriate test choices, optimum clinical laboratory use, and limitations of tests are emphasized as well as the pathophysiological basis of laboratory tests. Covers core competencies in genetics necessary to incorporate knowledge and skills into routine health care. Prerequisite(s): admission to the PA professional program.

**PA 717. Professional Issues (1).**

Introduces students to a wide variety of issues relevant to PA practice including common legal, ethical and professional concerns facing

practicing PAs. Emphasis is placed on health care delivery, cultural competency, health care administration, credentialing, continuing education, medical informatics, advancements in medical technology and end-of-life decisions. Prerequisite(s): admission to the PA professional program.

**PA 718. Clinical Medicine Cardiology (3).**

Advanced pathophysiologic and clinical assessment and management course uses an evidence-based practice approach to develop and integrate knowledge and skills related to the cardiovascular system. Emphasizes normal and abnormal cardiovascular development of pediatric, adult and geriatric patients, major disease pathophysiology, diagnosis, treatment, prognosis and disease prevention as it relates to the cardiovascular system. Prerequisite(s): admission to the PA professional program.

**PA 719. Clinical Medicine Pulmonology (3).**

Advanced pathophysiologic and clinical assessment and management course uses an evidence-based practice approach to develop and integrate knowledge and skills related to the respiratory system. Emphasizes normal and abnormal respiratory development of pediatric, adult and geriatric patients, major disease pathophysiology, diagnosis, treatment, prognosis and disease prevention as it relates to the respiratory system. Prerequisite(s): admission to the PA professional program.

**PA 721. Clinical Medicine Genitourinary/Renal (2).**

Advanced pathophysiologic and clinical assessment and management course uses an evidence-based practice approach to develop and integrate knowledge and skills related to the genitourinary and renal systems. Emphasizes normal and abnormal genitourinary and renal development of pediatric, adult and geriatric patients, major disease pathophysiology, diagnosis, treatment, prognosis and disease prevention as it relates to the genitourinary and renal systems. Prerequisite(s): admission to the PA professional program.

**PA 722. Clinical Medicine Gastroenterology (3).**

Advanced pathophysiologic and clinical assessment and management course uses an evidence-based practice approach to develop and integrate knowledge and skills related to the gastrointestinal system. Emphasizes normal and abnormal gastrointestinal development of pediatric, adult and geriatric patients, major disease pathophysiology, diagnosis, treatment, prognosis and disease prevention as it relates to the gastrointestinal system. Prerequisite(s): admission to the PA professional program.

**PA 724. Clinical Medicine OB/GYN (3).**

Advanced pathophysiologic and clinical assessment and management course uses an evidence-based practice approach to develop and integrate knowledge and skills related to the female reproductive system. Emphasizes normal and abnormal female reproductive development of pediatric and adult patients, major disease pathophysiology, diagnosis, treatment, prognosis and disease prevention as it relates to the female reproductive system and pregnancy. Prerequisite(s): admission to the PA professional program.

**PA 727. Preventive Medicine (2).**

Advanced course uses principles of epidemiology, health promotion, and public health research to develop and integrate knowledge and skills related to population-based preventive approaches to health care. Emphasizes behavioral techniques used in making health behavior change, health risk appraisal instruments, health screening, disease and accident prevention, risk factors for major causes of disability, and the distribution and determinants of disease frequency in human populations. Prerequisite(s): admission to the PA professional program.

**PA 728. Clinical Medicine Endocrinology (2).**

Advanced pathophysiologic and clinical assessment and management course uses an evidence-based practice approach to develop and integrate knowledge and skills related to the endocrine system. Emphasizes normal and abnormal endocrine development of pediatric, adult and geriatric patients, major disease pathophysiology, diagnosis, treatment, prognosis and disease prevention as it relates to the endocrine system. Prerequisite(s): admission to the PA professional program.

**PA 729. Clinical Behavioral Medicine (2).**

Advanced pathophysiologic and clinical assessment and management course uses an evidence-based practice approach to develop and integrate knowledge and skills related to the clinical behavioral medicine. Emphasizes normal and abnormal psychological development of pediatric, adult and geriatric patients, major disease pathophysiology, diagnosis, treatment, prognosis and disease prevention as it relates to behavioral medicine and psychiatry. Prerequisite(s): admission to the PA professional program.

**PA 731. Clinical Medicine Dermatology (2).**

Advanced pathophysiologic and clinical assessment and management course uses an evidence-based practice approach to develop and integrate knowledge and skills related to the dermatological system. Emphasizes normal and abnormal dermatological development of pediatric, adult and geriatric patients, major disease pathophysiology, diagnosis, treatment, prognosis and disease prevention as it relates to the dermatological system. Prerequisite(s): admission to the PA professional program.

**PA 732. Clinical Medicine EENT (2).**

Advanced pathophysiologic and clinical assessment and management course uses an evidence-based practice approach to develop and integrate knowledge and skills related to the EENT system. Emphasizes normal and abnormal EENT development of pediatric, adult and geriatric patients, major disease pathophysiology, diagnosis, treatment, prognosis and disease prevention as it relates to the EENT system. Prerequisite(s): admission to the PA professional program.

**PA 734. Clinical Medicine Neurology (2).**

Advanced pathophysiologic and clinical assessment and management course uses an evidence-based practice approach to develop and integrate knowledge and skills related to the neurological system. Emphasizes normal and abnormal neurological development of pediatric, adult and geriatric patients, major disease pathophysiology, diagnosis, treatment, prognosis and disease prevention as it relates to the neurological system. Prerequisite(s): admission to the PA professional program.

**PA 736. Clinical Practice II (2).**

Advances theories and skills learned in PA 700 by emphasizing patient management, evaluation of diagnostic studies, clinical problem solving, evidence-based practice, and critical thinking in both inpatient and outpatient settings. Includes advanced and problem-focused history taking and physical examinations as well as documentation and presentation techniques. Practice of methods and techniques learned takes place in a faculty-proctored laboratory setting. Opportunities are provided for observation and participation in the medical history and physical examination in inpatient and outpatient settings. Prerequisite(s): admission to PA professional program. Corequisite(s): PA 736L.

**PA 736L. Clinical Practice II Lab (1).**

Building upon PA 700L, this faculty-proctored laboratory course provides hands-on practice of advanced techniques and methods necessary to obtain an appropriate medical history and physical examination including normal and abnormal physical findings,

differential diagnosis, interpretation of diagnostic studies, treatment, prognosis, and disease prevention as it relates to clinical practice. Includes advanced and problem-focused history taking and physical examination as well as documentation and presentation techniques. *Course includes diversity content.* Prerequisite(s): admission to PA professional program.

**PA 741. Clinical Medicine of Bone and Joint Disease (1).**

Advanced pathophysiologic and clinical assessment and management course uses an evidence-based practice approach to develop and integrate knowledge and skills related to bone and joint disease. Develops an understanding of normal and abnormal bone and joint development and function, and major bone and joint disease pathophysiology, diagnosis, treatment and prevention in pediatric, adolescent, adult and elderly patients. Prerequisite(s): admission to the PA professional program.

**PA 742. Clinical Medicine Orthopedics (1).**

Advanced pathophysiologic and clinical assessment and management course uses an evidence-based practice approach to develop and integrate knowledge and skills related to orthopedics. Emphasizes normal and abnormal musculoskeletal development of pediatric, adult and elderly patients, major disease pathophysiology, diagnosis, treatment, prognosis and prevention as it relates to orthopedics. Prerequisite(s): admission to the PA professional program.

**PA 750. Seminar in PA Competencies (1-12).**

Arranged, individual or group directed study pertaining to achieving physician assistant competencies in the areas of medical knowledge, interpersonal skills, patient care skills, professionalism, practice-based learning, and/or system-based practice.

**PA 789. Clinical Anatomy (5).**

A graduate-level clinical anatomy course that emphasizes an advanced understanding and integration of human anatomy of the back, upper extremity, lower extremity, head, neck, thorax, and gastrointestinal and genitourinary systems. Course material is delivered through a combination of online lecture and cadaver lab instruction. Prerequisite(s): admission to the PA professional program. Corequisite(s): PA 789L.

**PA 789L. Clinical Anatomy Lab (1).**

Compliments PA 789 to provide an advanced understanding and integration of human anatomy of the back, upper extremity, lower extremity, head, neck, thorax, and gastrointestinal and genitourinary systems. The laboratory instruction and applied learning involves online lecture, computer-application, anatomical models and human cadaver dissections.

**PA 800. Research Methods for Evidence-Based Practice (2).**

Provides foundational and advanced knowledge and skills regarding research methods to prepare students to develop research studies and locate, appraise and apply health related research to answer clinical questions. Emphasizes principles of evidence-based practice, research ethics, professional and scholarly training, research design and methodologies, framing research questions, and interpretation of basic and advanced statistics necessary to critically evaluate, interpret and apply health care and health policy research to patient/client care and health care systems. Prerequisite(s): admission into physician assistant professional program or instructor's consent.

**PA 801. Clinical Rotation - Family Medicine (4).**

Supervised clinical practice experience that involves the student in comprehensive assessment and decision-making of patients across the lifespan, resulting in detailed treatment and management plans for preventive, acute and chronic conditions commonly encountered in outpatient family medicine. Students are assessed with regards to their competency in medical knowledge, patient care, interpersonal

communication, professionalism, practice-based learning and systems-based practice using standardized objective and subjective measures as related to the program's family medicine learning outcomes. Prerequisite(s): successful completion of the didactic phase of the physician assistant program.

**PA 802. Clinical Rotation - Pediatric Medicine (4).**

Supervised clinical practice experience that involves the student in comprehensive assessment and decision-making of infants, children and adolescents, resulting in detailed treatment and management plans for preventive, acute and chronic conditions commonly encountered in pediatric medicine. Students are assessed with regards to their competency in medical knowledge, patient care, interpersonal communication, professionalism, practice-based learning and systems-based practice using standardized objective and subjective measures as related to the program's pediatric learning outcomes. Prerequisite(s): successful completion of the didactic phase of the physician assistant program.

**PA 803. Clinical Rotation - Women's Health (4).**

Supervised clinical practice experience that involves the student in comprehensive assessment and decision-making of patients, resulting in detailed treatment and management plans for preventive, emergent, acute and chronic conditions commonly encountered in women's health including prenatal and gynecological care. Students are assessed with regards to their competency in medical knowledge, patient care, interpersonal communication, professionalism, practice-based learning and systems-based practice using standardized objective and subjective measures as related to the program's women's health learning outcomes. Prerequisite(s): successful completion of the didactic phase of the physician assistant program.

**PA 804. Clinical Rotation - Internal Medicine (4).**

Supervised clinical practice experience that involves the student in comprehensive assessment and decision-making of adults and older adults, resulting in detailed treatment and management plans for preventive, emergent, acute and chronic conditions commonly encountered in inpatient/outpatient internal medicine. Students are assessed with regards to their competency in medical knowledge, patient care, interpersonal communication, professionalism, practice-based learning and systems-based practice using standardized objective and subjective measures as related to the program's internal medicine learning outcomes. Prerequisite(s): successful completion of the didactic phase of the physician assistant program.

**PA 805. Clinical Rotation - Behavioral Health (4).**

Supervised clinical practice experience that involves the student in comprehensive assessment and decision-making of patients, resulting in detailed treatment and management plans for preventive, emergent, acute and chronic conditions commonly encountered in behavioral health. Students are assessed with regards to their competency in medical knowledge, patient care, interpersonal communication, professionalism, practice-based learning and systems-based practice using standardized objective and subjective measures as related to the program's behavioral health learning outcomes. Prerequisite(s): successful completion of the didactic phase of the physician assistant program.

**PA 806. Clinical Rotation - Surgery (4).**

Supervised clinical practice experience that involves the student in comprehensive assessment and decision-making of patients, resulting in detailed treatment and management plans for conditions requiring surgical management including preoperative, intraoperative and postoperative care. Students are assessed with regards to their competency in medical knowledge, patient care, interpersonal communication, professionalism, practice-based learning and systems-based practice using standardized objective and subjective measures

as related to the program's surgery learning outcomes. Prerequisite(s): successful completion of the didactic phase of the physician assistant program.

**PA 807. Clinical Rotation - Emergency Medicine (4).**

Supervised clinical practice experience that involves the student in comprehensive assessment and decision-making of patients across the lifespan, resulting in detailed treatment and management plans for emergent, acute and chronic conditions commonly encountered in the emergency department setting. Students are assessed with regards to their competency in medical knowledge, patient care, interpersonal communication, professionalism, practice-based learning and systems-based practice using standardized objective and subjective measures as related to the program's emergency medicine learning outcomes. Prerequisite(s): successful completion of the didactic phase of the physician assistant program.

**PA 808. Clinical Rotation - Elective I (4).**

Supervised clinical practice experience in one of several electives including general core rotation areas as well as subspecialty areas of medicine and surgery. The rotation involves the student in comprehensive assessment and decision-making resulting in detailed treatment and management plans for conditions commonly encountered in the selected setting. Students are assessed with regards to their competency in medical knowledge, patient care, interpersonal communication, professionalism, practice-based learning and systems-based practice using standardized objective and subjective measures as related to the program's learning outcomes. Prerequisite(s): successful completion of the didactic phase of the physician assistant program.

**PA 809. Clinical Rotation - Elective II (3).**

Supervised clinical practice experience in one of several electives including general core rotation areas as well as subspecialty areas of medicine and surgery. The rotation involves the student in comprehensive assessment and decision-making resulting in detailed treatment and management plans for conditions commonly encountered in the selected setting. Students are assessed with regards to their competency in medical knowledge, patient care, interpersonal communication, professionalism, practice-based learning and systems-based practice using standardized objective and subjective measures as related to the program's learning outcomes. Prerequisite(s): successful completion of the didactic phase of the physician assistant program.

**PA 850. Experiential Learning in Professionalism, Service, Research and Interprofessional Collaboration (1).**

Encourages students to integrate and enhance personal development of key physician assistant competencies such as professionalism, interpersonal skills, patient care skills, compassion, sensitivity to diversity, and practice-based learning through experiential learning activities followed by reflection and discussion. Students engage in a variety of required and elective faculty-led and student-led activities within the categories of: (1) professionalism, (2) service-learning/community service, (3) research/evidence-based practice and lifelong learning, and (4) interprofessional patient-centered teamwork. *Course includes diversity content.*

**PA 896. Directed Study Research I (2).**

First in a series of two courses in which students work with an assigned faculty adviser to plan and develop the required master's-level evidence-based project, paper, and oral defense. Prerequisite(s): admission to the PA professional program.

**PA 897. Directed Study Research II (2).**

Second in a series of two courses in which students work with an assigned faculty adviser to complete and finalize the required master's-

level evidence-based project, paper, and oral defense. Prerequisite(s): PA 896, admission to the PA professional program.

## **PADM - Public Administration**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

### **PADM 550. Workshop (1-3).**

Specialized instruction using variable formats in relevant urban and public affairs subjects. Repeatable for credit up to 6 hours. Prerequisite(s): departmental consent.

### **PADM 701. Public & Nonprofit Governance (3).**

Designed to help students develop an understanding of: (a) the governmental and political complexities within which public administration operates; (b) the nonprofit sector-including its major public-benefit sub components-and its role in the public administration environment; and (c) challenges facing both public and nongovernmental actors. Students should develop a working awareness of the significant concepts and components of the governance, politics and institutions, that enables them to analyze forces of change in this challenging environment.

### **PADM 702. Research Methods (3).**

Cross-listed as AGE 702. Provides foundational and advanced knowledge and skills to prepare students to develop research studies and locate, appraise and apply age-related research to answer clinical questions. Emphasizes principles of evidence-based practice, research design and methodologies, framing research questions, and interpretation of basic and advanced statistics necessary to critically evaluate, interpret and apply age-related research to industry challenges. Fulfills the university's professional and scholarly integrity training requirement addressing research misconduct, publication practices and responsible authorship, conflict of interest and commitment, research ethics, data management, sharing and ownership.

### **PADM 709. Urban Economics (3).**

Cross-listed as RE 709 and ECON 709. Surveys the economic structure and problems of urban areas on both the microeconomic and macroeconomic levels. Stresses the application of regional economic analysis in the study of urban areas as economic regions. Prerequisite(s): ECON 201, 202, junior standing.

### **PADM 710. Public Sector Organizational Theory and Behavior (3).**

Cross-listed as POLS 710. Reviews the scope of the field of public administration including a survey of key concepts and schools of thought underlying the field. Identifies issues shaping the future development of the field.

### **PADM 725. Public Management of Human Resources (3).**

Cross-listed as POLS 725. Surveys the major areas of management of human resources in the public sector. Includes hiring, training, evaluation and pay promotion policies. Emphasizes the laws governing public personnel management and the unique merit, equal employment opportunity, productivity, unionization and collective bargaining problems found in the public sector.

### **PADM 750. Public Administration Workshops (1-3).**

Specialized instruction using variable formats in a public administration relevant subject. Repeatable for credit with departmental consent. Prerequisite(s): departmental consent.

### **PADM 755. Special Topics in Urban and Public Affairs (1-3).**

Provides students with an opportunity to engage in advanced study in topics that are of immediate concern and arise only occasionally. Content varies with issues that arise, student needs, and faculty

expertise. Directed to Master of Public Administration students. Repeatable for credit with a change of content. Prerequisite(s): instructor's consent.

### **PADM 760. State and Local Economic Development (3).**

Explores the roles of state and local governments and officials in economic development through the use of case studies. Examines financing in economic development from the perspectives of public purpose and community objectives.

### **PADM 765. Public Sector Economics (3).**

Cross-listed as ECON 765. Examines theories of economic decision making and institutions, with a focus on how economic tools can be used to inform policy and management in the public and nonprofit sectors. Covers economic principles and discusses market failures and public policies intended to correct or alleviate market failure. Economic decision making tools for public and nonprofit management are also introduced.

### **PADM 771. Planning Process (3).**

For students desiring to work in an urban planning agency or who will be involved in planning issues as an administrator at the city, county, state or federal level. Also for students seeking an understanding of the complex process of urban-related life. Examines the role of planning in solving human and environmental problems. Emphasizes the relationship between specialists, citizens and elective officials as participants in the planning process.

### **PADM 775. State and Local Government Law (3).**

Exposes students to the legal principles which undergird the foundation of governmental operation and administration.

### **PADM 798. Independent Study (1-3).**

For graduate students to pursue research in areas not normally covered in coursework. Repeatable for credit with departmental consent. Prerequisite(s): departmental consent.

### **PADM 802. Quantitative Methods for Public Sector Professionals (3).**

Uses standard microcomputer statistical software and analysis to introduce statistics and quantitative analysis for organizational and policy decision making. Emphasizes the application of statistics and writing with quantitative evidence to real public sector policy questions. Assumes little or no background in statistics and software applications. Fulfills the university's professional and scholarly integrity training requirement covering research misconduct, publication practices and responsible authorship, conflict of interest and commitment, ethical issues in data acquisition, management, sharing and ownership when completed in conjunction with PADM 702. Prerequisite(s): PADM 702.

### **PADM 825. State and Local Government Administration (3).**

Examines administrative leadership in state and local government through case study and field experience. Draws on the experience of professional public managers. Designed for students nearing completion of the Master of Public Administration degree and planning careers in public management. Prerequisite(s): instructor's consent.

### **PADM 845. Public Policy Analysis and Program Evaluation (3).**

An overview of approaches to public policy analysis and program evaluation. Examines the roles of participants in public policy development, implementation and evaluation. Explores policy and program functions and their intended and unintended impacts. Focuses on methodologies for collection of data and their use in the assessment of programs and program impacts. Prerequisite(s): an approved statistics class and an approved methods class.

### **PADM 865. Public and Nonprofit Financial Management (3).**

Cross-listed as POLS 865. Introduction to state local government financial administration. Topics include: government accounting

systems, budgeting, government financial statement and financial condition analysis, internal financial control systems, debt management and policy, and government cash management and pension investment management systems. Prerequisite(s): PADM 765 or instructor's consent.

**PADM 866. Public Financial Management (3).**

Cross-listed as FIN 866. Addresses special topics of government capital budgeting and financing as well as general public infrastructure management skills and knowledge useful for public administrators and citizens. Specific topics include: capital planning, budgeting, financing strategies and options, debt management, policy and issuance processes, as well as innovative public capital financing such as public-private partnerships and state-local revolving funds. Prerequisite(s): PADM 865 or instructor's consent.

**PADM 867. State and Local Government Budgeting (3).**

Cross-listed as POLS 867. Covers government budgeting processes and institutions as well as a variety of tools and techniques for budget preparation, decision making, executing and evaluating spending programs while maintaining good financial condition. Emphasizes both political and technical skills in managing public resources. Along with spreadsheet exercises for technical analysis, cases on government budgeting are used to understand (1) how public budgets reflect a government's purposes, policies and priorities as well as its implementation plans, and (2) how public budgets reveal the political power used by a variety of actors involved in the decision-making process. Prerequisite(s): PADM 865 or instructor's consent.

**PADM 870. Fundraising and Financial Management for Nonprofit Organizations (3).**

Focuses on fundraising and financial management in nonprofit organizations. Examines fundraising from public and private sources including funding research, proposal writing and budgeting. Includes analysis of financial statements for the purpose of managing both the short-term and the long-term financial condition of a nonprofit organization. Prerequisite(s): PADM 865.

**PADM 871. Community Networks (3).**

Students learn how to use systems logic to define problems and develop collaborative solutions through networks that involve governmental and nongovernmental organizations. Prerequisite(s): PADM 702, 745, 802.

**PADM 873. Strategic Planning in Public and Nonprofit Organizations (3).**

Students create a strategic plan for a public or nonprofit organization. The course begins with an introduction to measurement and performance management. Students create a logic model that describes key elements of a service or process. Stakeholder analysis, an environmental scan and SWOT (strengths, weaknesses, opportunities and threats) are among the techniques explored. Students formulate a strategic issue. Scenarios and other planning techniques are used to assess alternative courses of action. The final product is an action plan that includes decision points, cost and implementation details.

**PADM 895. Public Decision Making (3).**

Focuses on decision making by public managers through case study method. Reviews models of public decision making. Explores public management from the perspective of public purposes, politics, organizational results and ethics. Prerequisite(s): successful completion of all other core courses in the MPA or instructor's consent.

## PHIL - Philosophy

Although there is no graduate degree in philosophy, the following courses are available for graduate credit.

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**PHIL 501. Philosophy of Language (3).**

Examines the relationships between philosophy and language. Focuses on questions such as: What is the relation between language and thought? Language and the world? What can the study of language contribute to the resolution of philosophical problems? Prerequisite(s): one 300-level or higher course in philosophy.

**PHIL 525. Evidential Reasoning (3).**

Explores philosophical issues related to reasoning about evidence. Topics may include: induction, confirmation, falsification, the under-determination of theories by evidence, theories of probability, and scientific method. Examines some case studies of reasoning about evidence in, for example, poker, medicine, risk analysis, forensic sciences and the law.

**PHIL 530. Ethics of Space Exploration (3).**

*General education humanities course*. Surveys various philosophical and ethical questions raised by the exploration of the space environment and in space policy discussions. Topics may include rationales for space exploration, space resource exploitation, and space settlement; planetary protection and preservation of the space environment; duties to extraterrestrial microbial life; and regulation and policy for space exploration. Prerequisite(s): at least one course in philosophy.

**PHIL 540. Theory of Knowledge (3).**

A critical examination of the nature of knowledge and of the philosophical problems concerning skepticism, knowledge of the self, material objects, other minds, the past, present and future, universals, and necessary truths. Includes selections from both historical and recent writings. Prerequisite(s): one course in philosophy.

**PHIL 546. Rationalism (3).**

A study of the philosophical views that emphasize reasoning rather than sensory experience as the source of knowledge with particular attention to the philosophies of Descartes, Spinoza and Leibniz.

**PHIL 549. Topics in Ancient Philosophy (3).**

Explores one decisive issue in philosophy from the time of Thales through the Stoics. The examination of an issue may confine itself to one period within the total span of ancient philosophy or it may trace the issue throughout the span, indicating its contemporary treatment. Some issues treated are: the nature of what is, the concept of the sacred, the meaning of truth, the relation of invariance and process, the existence of universal standards of thought and conduct, the problem of knowledge, skepticism, the nature of language, and the character of philosophical inquiry.

**PHIL 550. Metaphysics (3).**

An exploration of some basic topics in the theory of reality. Includes such notions as space, time, substance, causality, particulars, universals, appearance, essence and being. Prerequisite(s): one course in philosophy.

**PHIL 555. Philosophy of the Social Sciences (3).**

Studies such topics as the relation of social sciences with natural sciences and philosophy, methodological problems peculiar to social sciences, the nature of sound explanation concepts and constructs, and the roles of mathematics and formal theories in social sciences.

**PHIL 557. Contemporary European Philosophy (3).**

An exploration of a theme, issue, philosopher, or movement in contemporary European philosophy. Includes philosophers Husserl, Heidegger, Jaspers, Gadamer, Habermas, Marcuse, Adorno, Bergson, Sartre, Merleau-Ponty, Bachelard, Lacan, Derrida, Foucault, and Ricoeur. Examines philosophical movements such

as phenomenology, idealism, existentialism, structuralism, process philosophy, hermeneutics, and Marxism.

**PHIL 565. Topics in Asian Philosophy (3).**

An in-depth examination of selected topics in Asian philosophy. The topics covered in any particular semester vary. Representative topics include movements such as Confucianism, Taoism or Buddhism. Prerequisite(s): one philosophy course.

**PHIL 577. Philosophy of The Arts (3).**

*General education humanities course.* Intensively examines one or more fundamental problems or themes in the philosophy of art or in the special aesthetics of painting, music, sculpture, literature, drama, movies and so forth. Includes the problem of tragedy, the character of the aesthetic attitude, the function of the arts, the legitimacy of general art theory, the presuppositions of specialized art theory, the creative act, art and truth, art and life, and the nature and function of art criticism.

**PHIL 585. Studies in a Major Philosopher (3).**

A concentrated study of the thought of one major philosopher announced by the instructor when the course is scheduled. Repeatable for credit. Prerequisite(s): instructor's consent.

**PHIL 585R. Major Philosopher: Nietzsche (3).**

Examines Nietzsche's writings as philosophy and as literature, and considers the implications of Nietzsche's "perspectivism" for philosophy, morality and interpretation. Nietzsche's own writings are, of course central, although students also engage the celebrated book, "Nietzsche: Life as Literature," and consider Nietzsche's influence on contemporary approaches to literary, biblical and constitutional interpretation.

**PHIL 590. Special Studies (1-3).**

Topic for study announced by instructor. Repeatable for credit. Prerequisite(s): instructor's consent.

**PHIL 590AD. Environmental Ethics (3).**

Surveys various philosophical and ethical questions raised by human interaction with, and impact on, the natural environment. Focuses on historical and contemporary, theoretical and applied, issues in environmental ethics. Topics include: anthropocentrism versus nonanthropocentrism; environmental justice and rights; progress and innovation versus stewardship and restoration; the science of climate change.

**PHIL 590K. Philosophy of Medicine (3).**

Covers topics related to the metaphysics and epistemology of medicine, not excluding their human impact. Topics of philosophical investigation may include for example concepts of disease and disability, evidence based medicine, medical models and mechanisms, reductionism, constructivism, expert consensus, clinical judgment, categorization and classification, epidemiology, and outcome measurement. May include historical and multicultural approaches to health and medicine.

**PHIL 590O. Models and Analogies (3).**

In this small seminar-style course, students look at the history and philosophy of the use of models and analogies in various sciences, up to and including the present day. Includes mathematical models as well as physical models, and includes not only physics, chemistry and biology, but social sciences, such as political science, economics and psychology. In the first part of the course, students read and discuss philosophical works about how models and analogies are involved in science, sometimes implicitly, and consider how it is that they can often extend knowledge and understanding, yet also how they can sometimes mislead. In the second part of the course, students take an in-depth look at examples of the use of models in various fields; the choice of topics are based on student interest.

**PHIL 699. Directed Readings (1-3).**

For the student interested in doing independent study and research in a special area of interest. Repeatable for credit. Prerequisite(s): departmental consent.

**PHIL 850. Directed Readings (2-3).**

For the graduate student desiring independent study and research in an area of special interest. Repeatable for credit. Prerequisite(s): departmental consent.

## PHS - Public Health Sciences

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**PHS 575C. Domestic Human Trafficking (3).**

Cross-listed as SCWK 611C. This course will build on the undergraduate and graduate student's knowledge in working with individuals, groups, and communities with a specific focus on populations at-risk of and/or subjugated to domestic trafficking. With specialized instruction regarding domestic human trafficking, particularly domestic minor sex trafficking, this course aims to equip students with the practice knowledge, skills, and ethics in order that they might engage in effective anti-trafficking responses. Topics covered within this course include: forms of human trafficking; those involved; risk and resiliency factors; prevention; and direct-services through the prevention, assessment, identification, intervention/restoration, and termination/transition/prosperity process (Countryman-Roswurm, 2015).

**PHS 575K. Supervisory in Healthcare Graduate Bridge (1).**

This course is a study of supervisory management concepts and techniques that apply to healthcare organizations and programs. Emphasis is on understanding the healthcare environment and its various healthcare settings, the identification of issues facing front-line employees, supervisors and mid-level managers, and the development of administrative and leadership skills necessary to successfully lead healthcare work teams. It identifies, analyzes and solves problems that clinical department heads, supervisors and other health related mid-management personnel encounter in their work.. This course is intended for students who completed HMCD or PHS 621 as an undergraduate, but did not complete the additional graduate requirements. Prerequisite(s): PHS 621 (HMCD 621).

**PHS 575L. Human Resources in Healthcare Graduate Bridge (1).**

This course is intended for health care management students who will assume responsibility for managing people in health services organizations. The course is an introduction to the essential theories, components, and issues of human resource management in the health care field. It includes, among many other topics, the study of the effectiveness of the human resource management function, employee recruitment, selection, training, performance appraisal, benefit and compensation, employee relations and other relevant legal requirements affecting employment in the health care sector. Students enrolled in this course will be required to learn and to demonstrate the ability to analyze human resources problems and to find and present sound solutions. This course is intended for students who completed HMCD or PHS 622 as an undergraduate, but did not complete the additional graduate requirements. Prerequisite(s): PHS 622 (HMCD 622).

**PHS 575N. Care of Populations: Public Health Science (0.5).**

Focuses on the core competency for Public Health Professionals, Public Health Science Skills, Tier 1. Focuses on the science of public health practice which integrates, competencies, essential services, retrieval of evidence, and core functions toward the goal of improving the health of populations. As part of the course requirements, the student

completes step 1 of an integrated community health assessment and health improvement plan.

**PHS 575O. Care of Populations: Care Leadership & Systems Thinking (0.5).**

Focuses on the core competency for Public Health Professionals, Public Health Science Skills, Tier 1. Focuses on the science of public health practice which integrates, competencies, essential services, retrieval of evidence, and core functions toward the goal of improving the health of populations. As part of the course requirements, the student completes step 1 of an integrated community health assessment and health improvement plan.

**PHS 575P. Care of Populations: Financial Planning & Management (0.5).**

Focuses on the core competency for Public Health Professionals, Public Health Science Skills, Tier 1. Focuses on the science of public health practice which integrates, competencies, essential services, retrieval of evidence, and core functions toward the goal of improving the health of populations. As part of the course requirements, the student completes step 1 of an integrated community health assessment and health improvement plan.

**PHS 575Q. Care of Populations: Community Dimensions of Practice (0.5).**

Focuses on the core competency for Public Health Professionals, Public Health Science Skills, Tier 1. Focuses on the science of public health practice which integrates, competencies, essential services, retrieval of evidence, and core functions toward the goal of improving the health of populations. As part of the course requirements, the student completes step 1 of an integrated community health assessment and health improvement plan.

**PHS 575R. Care of Populations: Cultural Competency (0.5).**

Focuses on the core competency for Public Health Professionals, Public Health Science Skills, Tier 1. Focuses on the science of public health practice which integrates, competencies, essential services, retrieval of evidence, and core functions toward the goal of improving the health of populations. As part of the course requirements, the student completes step 1 of an integrated community health assessment and health improvement plan.

**PHS 575S. Care of Populations: Policy Development & Program Planning (0.5).**

Focuses on the core competency for Public Health Professionals, Public Health Science Skills, Tier 1. Focuses on the science of public health practice which integrates, competencies, essential services, retrieval of evidence, and core functions toward the goal of improving the health of populations. As part of the course requirements, the student completes step 1 of an integrated community health assessment and health improvement plan.

**PHS 575T. Health Science Capstone (3).**

Designed to familiarize students with the factors influencing successful professionalism in the health care setting. Emphasizes the application of course materials to the development of the student's health care career. Course format includes lecture, group and individual examination of the literature, analysis of case studies, inter-professional education and fieldwork. This course is for undergraduates in the BSHS program only. Prerequisite(s): HS program core courses (PHS 325, PHS 344, PHS 356, PHS 410 and PHS 642).

**PHS 575U. Public Health in Film (3).**

Critically explores public health issues as they are portrayed in popular films. Examines the scientific, social and political underpinnings of the public health issues portrayed in movies. Covers topics such as environment, tobacco policy, environmental policy, HIV, health

disparities, pandemics, global health, sexual assault, aging, refugees, opioids and mental health.

**PHS 621. Supervisory Management in Health Care Organizations (3).**

Cross-listed as HA 621. Studies supervisory management concepts and techniques that apply to health care organizations and programs. Emphasizes understanding the health care environment and its various health care settings, identifying issues facing front-line employees, supervisors and mid-level managers, and the development of administrative and leadership skills necessary to successfully lead health care work teams. Identifies, analyzes and solves problems that clinical department heads, supervisors and other health-related mid-management personnel encounter in their work. The principles of effective management techniques — planning, decision making, organizing, budgeting, time management, leadership, direction, delegation, communication, motivation, discipline, performance appraisal, managing change, teamwork, effective meetings, working with unions, quality improvement and career development — are covered. For graduate credit only.

**PHS 622. Human Resource Management in Health Care Organizations (3).**

Cross-listed as HA 622. Intended for clinical health care professionals who will assume responsibility for managing people in health services organizations. Introduces the essential theories, components and issues of human resources management in the health care field. Includes, among many other topics, the study of the effectiveness of the human resources management function, employee recruitment, selection, training, performance appraisal, benefits and compensation, employee relations and other relevant legal requirements affecting employment in the health care sector. Covers issues of contemporary relevance for human health services resource departments such as employee health and safety, employee assistance programs, occupational stress and job burnout, use of the internet in the workplace, violence in the workplace, and work/family issues. Students are required to learn and demonstrate the ability to analyze human resources problems and to find and present sound solutions. Students are expected to learn and demonstrate effective group working skills as they join small groups and engage in collaboratively solving a number of human resources management problems. For graduate credit only.

**PHS 624. Community Development Methods (3).**

Builds on the foundation of public health by examining a variety of advanced methods, theories and skills used for community development. Students familiarize themselves with the approaches used to assess and improve health outcomes in a community context, and familiarize themselves with how to effectively apply these approaches. Includes lecture, group and individual projects, fieldwork and visiting lectures from practicing community development professionals.

**PHS 642. Financing Health Care Services (3).**

Examines the principles of financial analysis and management, used in health care institutions, which are most useful to nonfinancial personnel. Emphasizes understanding and application of general financial concepts crucial to the health setting; considers financial organization, sources of operating revenues, budgeting and cost allocation methods. Uses examples for various types of health service organizations. Pre- or corequisite(s): BADM 162.

**PHS 644. Program Planning and Evaluation (3).**

Introduces students to the planning, development and evaluation of health programs through the use of lecture, group projects and individual presentations. Students familiarize themselves with a variety of approaches available in the field of program planning. Emphasizes the application of this material to the development of a program plan.

**PHS 803. Healthcare Finance (3).**

Overview of health care financing and financial management of health care organizations. Emphasizes the role of financial management in operations as well as principles and concepts related to organizational decision making and accountability. Explores the economic impact of these decisions.

**PHS 804. Principles of Statistics in the Health Sciences (3).**

Introductory statistics for graduate students in the social and health sciences with little or no background in statistics. Provides first year (or equivalent) MPH students with a basic understanding of certain statistical techniques, the appropriate application of these techniques, and use of the software package, SPSS.

**PHS 808. Principles of Epidemiology (3).**

Cross-listed as HA 808. Introductory graduate-level course concerning epidemiological principles and how these form the scientific basis for public health. Introduces students to the science and methodology of disease and risk surveillance in public health. Presents the foundations and structure used to solve medical and environmental health problems in the community with a primary focus on the health status of individual populations and special populations as they relate to health promotion and disease prevention. Includes lecture, group analysis, class guests and discussion.

**PHS 812. Health Care Policy and Administration (3).**

Cross-listed as HA 812. Graduate-level course in the principles of health policy and administration. Considers the elements of strategic thinking at an organizational level as well as strategic implications of health policy and management at the national health care system level. Provides an in-depth look at policy and management issues in the health system from a public health perspective. Topics include health policy, trends in the health care system, and administrative issues.

**PHS 814. Social and Behavioral Aspects of Public Health (3).**

Examines the characteristics, beliefs and behaviors of individuals and groups involved in the process of health care. Draws on concepts and principles of the social, behavioral and clinical sciences, especially dynamics that define the interactions of providers and consumers of health care. Explores why people react to perceived symptoms the way they do, the reasons providers respond as they do to patients with different social attributes, the factors which predispose individual reactions to illness and its correlates, and the effects on health of societal agreements and expectations.

**PHS 816. Environmental Health (3).**

A survey course in environmental health designed to provide an understanding of the fundamental theory and methods for the control of disease. Includes environmental law, disease systems, water supplies, plumbing, waste water treatment, food sanitation, vector control, recreation sanitation, solid waste disposal, housing sanitation and air pollution.

**PHS 824. Cultural Competency in Health Care (3).**

Examines the importance of culturally-informed care as a professional responsibility in clinical practice. Designed to critically examine cultural competency, explore the challenge of responding to health disparity, and develop skills for providing person-centered care. Cultural context constructs the ways people frame, react to, and treat illness and other health risks. Individual illness experience is shaped by such factors as age, identity, gender, ethnicity, education, religion, income, tradition and ability and, and influences such as power, hierarchy in medicine, economics, history, authority, resource allocation and technology. The confluence of these factors may result in major differences between a patient's and provider's understanding of illness, potentially resulting in adverse health outcomes. Course challenges students to develop an understanding of the role of culture

in health care and to increase cultural responsiveness within the clinical context. Includes an introduction to culture theory, themes and key concepts, exploration of health disparity, a comparative overview of diversity in health beliefs and behaviors, exposure to applied skill sets intended to improve patient/provider congruence, and appreciation for interprofessional practice. Format includes lecture, discussion, reflection, film, case studies and follow-up clinical rotation reflection and evaluation.

**PHS 833. Health Economics (3).**

Cross-listed as HA 833. Applies classical economic theories, principles and concepts to traditional U.S. medical care. Considers both the traditional and unique determinants of demand and supply, emphasizing the role of need for care, provider-induced demand, and health insurance. Also considers the legitimate role of government in health care.

**PHS 848. Concepts of Quality in Healthcare (3).**

Presents quality management and the leadership of quality initiatives in health services organizations to graduate students. Focuses on a systemic approach looking at various methodologies and the key issue of patient safety. Presents the history and current status of quality management initiatives, as well as the role of quality in organizational strategic management. Students learn the role of quality from theory to application in a broad base of organizational settings.

**PHS 877. Independent Study (1-3).**

Supervised study of special topics and problems relating to public health sciences. Repeatable up to 6 credit hours. Prerequisite(s): program consent.

**PHYS - Physics**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**PHYS 501. Special Studies in Physics for Educators (1-3).**

3 Lab hours. A series of courses covering basic physical concepts which provide a physical science background for teachers. Repeatable for a total of 5 credit hours. Prerequisite(s): inservice or preservice teacher.

**PHYS 501K. Nuclear Concepts (1-3).**

Part of a series of courses covering basic physical concepts which provide a physical science background for teachers. Structure of atoms and the experiments that revealed this structure, quantization of matter, electric charge, and light, concepts of quantum mechanics. This course may also include further topics and applications, for example cosmic microwave background radiation or other topics of current interest.

**PHYS 502. Science Investigations: Physics (3-5).**

Introductory course for prospective teachers. Basic physics concepts in mechanics, heat, and electricity and magnetism developed through laboratory investigations. Emphasizes science process skills and the nature of the scientific endeavor. Prerequisite(s): MATH 111 or equivalent; inservice or preservice teacher.

**PHYS 516. Advanced Physics Laboratory (2).**

4 Lab hours. Experiments in classical and modern physics to stress scientific methods and experimental techniques. The experiments are open-ended projects requiring individual study. Repeatable for a total of 8 credit hours. Pre- or corequisite(s): PHYS 551.

**PHYS 517. Electronics Laboratory (2).**

1 Classroom hour; 3 Lab hours. Experiments in electronics that treat some of the applications of electronics in scientific physics research. Experiments cover the uses of transistors, op-amps, integrated and digital circuits. Prerequisite(s): PHYS 314.

**PHYS 551. Topics in Modern Physics (3).**

An introduction to selected areas of modern physics emphasizing the features of atomic, nuclear and solid state physics that require modifications of classical physics for their explanation. Prerequisite(s): PHYS 214 or 314, or departmental consent. Pre- or corequisite(s): MATH 344.

**PHYS 555. Modern Optics (3).**

Geometrical and physical optics, coherence theory and Fourier optics. Additional topics may include radiation, scattering, optical properties of solids and optical data processing. Prerequisite(s): PHYS 214 or 314 and MATH 344.

**PHYS 595. Astrophysics (3).**

Covers the formation, life and death of stars. Topics include: HR-diagrams, atomic and molecular spectra, radiative and convective transfer, the structure and spectra of stellar atmospheres, and stellar evolution. Prerequisite(s): PHYS 551.

**PHYS 600. Individual Readings in Physics (1-3).**

Repeatable for a total of 6 credit hours for physics majors. Prerequisite(s): departmental consent.

**PHYS 601. Individual Readings in Astrophysics (1-3).**

Studies several topics in astronomy and astrophysics in depth. Lectures, independent readings and student projects may be assigned. Repeatable for credit up to 6 hours. Prerequisite(s): instructor's consent.

**PHYS 616. Computational Physics Laboratory (2).**

1 Classroom hour; 2 Lab hours. Provides a working knowledge of computational techniques with applications in both theoretical and experimental physics, including an introduction to the FORTRAN and C++ languages as used in physics. Pre- or corequisite(s): MATH 555.

**PHYS 621. Analytical Mechanics (3).**

Motion of a particle or system of particles in one or several dimensions, central forces, rotating coordinate systems, the harmonic oscillator and the Lagrangian and Hamiltonian formulation of mechanics. Prerequisite(s): PHYS 214 or 314, and MATH 344 with grades of C or better.

**PHYS 623. Advanced Mechanics (3).**

Continuation of PHYS 621. Covers dynamics of a system of coupled particles, fluid mechanics, systems with continuum distributions of mass, and theory of small oscillations all in a Lagrangian or Hamiltonian formulation. Prerequisite(s): PHYS 621, or MATH 553 or 555, or instructor's consent.

**PHYS 631. Electricity and Magnetism (3).**

Electric and magnetic field theory, direct and alternating currents and Maxwell's electromagnetic wave theory. Prerequisite(s): PHYS 214 or 314, and MATH 344 with grades of C or better.

**PHYS 641. Thermophysics (3).**

The laws of thermodynamics, distribution functions, Boltzmann equation, transport phenomena, fluctuations, and an introduction to statistical mechanics. Prerequisite(s): PHYS 214 or 314, and MATH 344.

**PHYS 651. Quantum Mechanics I (3).**

Introduction to quantum mechanics, the Schrodinger equation, elementary perturbation theory and the hydrogen atom. Prerequisite(s): PHYS 551.

**PHYS 652. Quantum Mechanics II (3).**

A continuation of PHYS 651 and covers time dependent perturbation theory, WKB, scattering, Bell's theorem, quantum reality, applications of quantum mechanics, and nanotechnology. Prerequisite(s): PHYS 651.

**PHYS 661. Introduction to Atomic Physics (3).**

Quantum mechanics is the basis of all our physical understanding of atomic and molecular spectra. This course uses quantum mechanics to understand the nature and formation of the spectra of one, two and many-electron atoms. A discussion of atomic collisions is included. Corequisite(s): PHYS 651.

**PHYS 675. Nuclear/Particle Physics (3).**

Theories of nuclear and particle physics, including experimental techniques and important features of current data. Summary of mesons, baryons and leptons, and their electromagnetic, strong and weak nuclear force interactions. Phenomenological descriptions of nuclear and high-energy scattering and particle production leading to the quark theory of matter and other new exotic particles. Prerequisite(s): PHYS 551.

**PHYS 681. Solid State Physics (3).**

A one-semester introduction to solid state physics, which explores and explains-in terms of the microscopic processes that produce them-the thermal, mechanical and electronic properties of solids. Discusses practical applications and interdisciplinary material. Prerequisite(s): PHYS 551.

**PHYS 695. Astrophysics II (3).**

Continuation of PHYS 595. Covers the properties of the solar system and extra-solar planets. Other topics of modern astronomy are included such as the formation of galaxies, cosmology and the Big Bang model. Prerequisite(s): PHYS 595 or instructor's consent.

**PHYS 701G. Mathematical Methods in Physics (3).**

This course is a continuation of PHYS 714, Theoretical Physics. It is a study of mathematical techniques applicable to physics and other sciences. Topics covered in this course include group theory, differential geometry, statistical methods, functional methods, path integrals, renormalization grouping, chaos theory, and string theory. Prerequisite(s): PHYS 714 or instructor's consent.

**PHYS 702. Energy and Sustainability (3).**

Cross-listed as ME 702. Introduces sustainability in a world of increasing population with more energy intensive lifestyles and diminishing resources; anthropogenic global climate change and the engineer's responsibilities; estimating our carbon footprint; surveys alternative energy sources with special emphasis on wind and solar energy; life cycle analysis (LCA) of engineered products; the electric grid; emissions from various transportation modes, and alternatives. Consists of traditional lectures, seminars by invited experts, and case studies. Meets the ME undergraduate curricular requirement for thermal/fluids elective and/or a general ME elective. *Course includes diversity content.* Pre- or corequisite(s): ME 522 or PHYS 551; or instructor's consent.

**PHYS 714. Theoretical Physics (3).**

A study of mathematical techniques applicable to physics and other sciences. Instructor selects topics, such as power series, infinite products, asymptotic expansions, WKB method, contour integration and residue methods, integral transforms, Hilbert spaces, special functions and integral equations. Prerequisite(s): MATH 555 or instructor's consent.

**PHYS 730. Principles of Computer Modeling (2).**

1 Classroom hour; 2 Lab hours. Essential elements, principles and strategies of forward and inverse numerical computer modeling. Formulation of a qualitative problem (parametrization), model design, implementation, and interpretation of model results. Working knowledge of computational techniques with examples in physics, geology, chemistry and environmental sciences. Prerequisite(s): PHYS 616 or EEPS 701, plus knowledge of a programming language or numerical or symbolic mathematics package, or instructor's consent.

**PHYS 761. Environmental Physics (3).**

Covers the application of physics to the environment, including the production and use of energy, the transport of pollutants, and the study of noise. Topics include basic thermodynamics with applications to fossil fuels, hydroelectric, wind, geothermal and solar energies, plus effects on global warming, pollution and climate. Prerequisite(s): PHYS 313-314 and MATH 242, or EEPS 721, or instructor's consent.

**PHYS 795. Earth and Space Physics (3).**

Cross-listed as GEOL 795. An introduction to the geosciences and astrophysics of the solar system. Topics include the surface, interior and atmospheres of the planets with a comparative planetology approach, and the sun-planet system including solar physics and the effect of the sun on the earth's environment and geologic history. Prerequisite(s): PHYS 313-314, and MATH 242, or EEPS 721, or instructor's consent.

**PHYS 800. Individual Readings (1-3).**

Repeatable for credit up to 3 hours. Prerequisite(s): 30 hours of physics and departmental consent.

**PHYS 801. Selected Topics (2-3).**

Repeatable for credit up to 6 hours. Prerequisite(s): departmental consent.

**PHYS 807. Seminar (1).**

Review of current periodicals; reports on student and faculty research. Repeatable for credit up to 2 hours. Prerequisite(s): 20 hours of physics.

**PHYS 809. Research (1-3).**

Pursue research directed by a faculty member. Repeatable for credit up to 6 credit hours.

**PHYS 811. Quantum Mechanics (3).**

The Schrodinger and Heisenberg formulations of quantum mechanics. Applications include rectangular potentials, central forces, and the harmonic oscillator. Also includes spin, time independent and time dependent perturbation theory. Prerequisite(s): PHYS 621, 651 or departmental consent and MATH 555.

**PHYS 812. Advanced Quantum Mechanics (3).**

Applications of quantum mechanics. Topics which may be included are the WKB approximation, scattering, N-body problem, second quantization and relativistic quantum mechanics. Prerequisite(s): PHYS 811.

**PHYS 816. Methods in Experimental Physics (2).**

Experiments in modern physics and experimental methods are covered stressing the development of experimental techniques and how to analyze data statistically and mathematically from these experiments. Prerequisite(s): PHYS 516, 517, or their equivalents.

**PHYS 821. Classical Mechanics (3).**

The Lagrangian, Hamiltonian and Hamilton-Jacobi methods of mechanics and an introduction to variational calculus. Applications selected from central forces, rigid bodies, relativity, small oscillations and continuous media. Prerequisite(s): PHYS 621, MATH 555.

**PHYS 831. Classical Electricity and Magnetism (3).**

Maxwell's equations with application to static electricity and magnetism. Also may include electromagnetic fields, vector potentials, Greens functions, relativity, optics and magnetohydrodynamics. Prerequisite(s): PHYS 631, MATH 555.

**PHYS 845. Space Science Foundations (3).**

Cross-listed as EEPS 845. Presents an understanding of the extreme special conditions encountered in space. Introduces the heliopause formed by the protective bubble of the sun, which starts as a solar wind, and how spacecrafts or planets survive this special space environment. Studies ideas on propulsion, launch trajectories and orbital principles. Introduces spacecraft systems, communications, navigation and

design principles necessary to successfully transverse space. Presents astrobology and the special space environment that creates especially difficult hardships to which life in space must adapt in order to survive. Introduces space ethics and laws set forth by international treaties. Prerequisite(s): PHYS 795 or GEOL 795.

**PHYS 851. Plasma Physics (3).**

Introduces the basic physics process associated with plasma, which permeates all of space and space environments. Studies both the fluid and particle nature of the problem and derives a description using wave phenomena and elementary particle drift. Describes applications of the theory to real space environments along with special examples between planets and the plasma, space-craft and the plasma, as well as explains the solar origin of the plasma. Other advanced topics in plasma physics such as fusion or magneto hydrodynamics is covered as student interest and time permits. Prerequisite(s): PHYS 631 or EE 463.

**PHYS 855. Radiation Physics (3).**

Covers basic nuclear processes in radioactive sources and the radiation effects on matter, their detection and simulations. Reviews the basic characteristics of all types of common radiation and detectors, and specific classes of detectors such as scintillation, ionization and semiconductors. Emphasizes the physical processes from generation and the effects on all types of matter such as tissue, space-craft parts and detectors. The basic ideas behind signal processing and state-of-the-art data analysis techniques. Prerequisite(s): PHYS 551 and (PHYS 631 or EE 463).

**PHYS 871. Statistical Mechanics (3).**

An introduction to the basic concepts and methods of statistical mechanics with applications to simple physical systems. Prerequisite(s): MATH 555, PHYS 621.

**PHYS 876. Elementary Particles & Fields (3).**

A survey of nuclear, elementary particle and astro-particle physics topics in the mathematical framework of the Standard Model and its experimental verification. Students may benefit from taking PHYS 816 prior to this course, but it is not required. Prerequisite(s): PHYS 811 or departmental consent.

**PHYS 881. Solid State Physics (3).**

A second course in solid state physics for students who have had an introduction to the subject. Transport, dielectric and optical properties, magnetic properties, superconductivity and applications to semiconductor devices. Prerequisite(s): MATH 555, PHYS 651, 681, or departmental consent.

**PHYS 895. Advanced Astrophysics (3).**

Covers topics in astrophysics in relation to stellar structure, atmospheres and stellar evolution. Advanced topics in galactic dynamics, formation and cosmology may be included. Prerequisite(s): PHYS 595 or instructor's consent.

**PHYS 983. Advanced Independent Study in Physics (1-3).**

Arranged individual directed study in an area of physics. Repeatable for credit with departmental consent. Prerequisite(s): instructor's consent.

**PHYS 987. PhD Dissertation (1-9).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for a total of 24 credit hours. Prerequisite(s): must have passed the PhD preliminary exam in physics.

**POLS - Political Science**

Although there is not a graduate program in political science, the following courses are available for graduate credit.

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**POLS 570. International Political Economy (3).**

Cross-listed as ECON 570. Examines policy decisions regarding exchanges of trade, money and labor that span national boundaries. Studies the interaction of politics and economics at the international level, as well as the modern history of the global economy. Economics often studies the material benefits and costs of different policies. Political science asks why these policies exist in the first place with a focus on who gets the benefits, who pays the costs, and how decisions about allocating benefits and costs are made. *Course includes diversity content.*

**POLS 600. Senior Thesis (3).**

Capstone course for political science majors designed to pull together many of the themes and concepts covered in introductory and upper-division courses. The main component is writing a senior thesis in which students conduct in-depth research about a topic of their interest. The topic should be related to one of the main areas of political science: American politics, international relations or comparative politics. In exceptional cases, students may write a paper related to political theory. Course professor provides guidelines and a schedule of activities, supervises and grades the overall research process; however each student works closely with a faculty member in order to develop his or her research projects. For undergraduate students only.

**POLS 710. Public Sector Organizational Theory and Behavior (3).**

Cross-listed as PADM 710. Reviews the scope of the field of public administration including a survey of key concepts and schools of thought underlying the field. Identifies issues shaping the future development of the field.

**POLS 725. Public Management of Human Resources (3).**

Cross-listed as PADM 725. Surveys the major areas of management of human resources in the public sector. Includes hiring, training, evaluation and pay promotion policies. Emphasizes the laws governing public personnel management and the unique merit, equal employment opportunity, productivity, unionization and collective bargaining problems found in the public sector.

**POLS 865. Public and Nonprofit Financial Management (3).**

Cross-listed as PADM 865. Introduction to state local government financial administration. Topics include: government accounting systems, budgeting, government financial statement and financial condition analysis, internal financial control systems, debt management and policy, and government cash management and pension investment management systems. Prerequisite(s): PADM 765 or instructor's consent.

**POLS 867. State and Local Government Budgeting (3).**

Cross-listed as PADM 867. Covers government budgeting processes and institutions as well as a variety of tools and techniques for budget preparation, decision making, executing and evaluating spending programs while maintaining good financial condition. Emphasizes both political and technical skills in managing public resources. Along with spreadsheet exercises for technical analysis, cases on government budgeting are used to understand (1) how public budgets reflect a government's purposes, policies and priorities as well as its implementation plans, and (2) how public budgets reveal the political power used by a variety of actors involved in the decision-making process. Prerequisite(s): PADM 865 or instructor's consent.

## PSY - Psychology

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**PSY 508. Psychology Tutorial (1-3).**

Selected topics in psychology. Repeatable for a total of 6 credit hours. Instructor's consent may be required. Check Schedule of Courses. Prerequisite(s): PSY 111.

**PSY 508AB. Psychology of Video Games (3).**

An introduction to psychological research and how it pertains to video games. This course will cover game design from the perspective of psychological research, both in academic fields such as perception and attention and also user experience research found in the game development industry. Prerequisite(s): PSY 111.

**PSY 508AH. Aging as a Societal Issue: OK Boomer and Beyond Honors (3).**

Cross-listed as HNRS 306I. *General education social and behavioral sciences course*. Presents demographic information about the transformation of the U.S. into an aging society, as well as current research about the aging process itself. Social policy implications are explored in areas such as healthcare, the workplace and technology. The course engages students from different generations in dialogue with dialogue topics chosen by the students and class sessions throughout the semester led by student teams. Prerequisite(s): honors student or permission of the Honors College.

**PSY 511. Introduction to School Psychology (3).**

Cross-listed as CLES 511. Introduces students to a career in school psychology. School psychologists work in schools to solve students' academic and behavioral problems through consultation, assessment and intervention. Course examines the roles and functions of school psychologists, the methods used to address students' psychoeducational needs, and the school and community systems within which they operate. *Course includes diversity content.*

**PSY 512. Exploring Concepts and Careers in Educational Psychology (3).**

Cross-listed as CLES 512. Explores the field of educational psychology and its application in different areas, such as teaching, learning, coaching, training, assessment and research. Introduces students to the wide variety of careers in educational psychology. Also introduces students to the practical application of educational psychology by considering topics such as cognition (problem solving, memory, decision making), behavioral learning principles, motivation, human development, curriculum development, assessment, basic research design, and the role of research. *Course includes diversity content.*

**PSY 534. Psychology of Women (3).**

*General education social and behavioral sciences course*. Cross-listed as WOMS 534. Psychological assumptions, research and theories of the roles, behavior and potential of women in contemporary society. *Course includes diversity content.* Prerequisite(s): PSY 111.

**PSY 536. Behavior Modification (3).**

A study of the basic assumptions, principles and issues of behavioral approach to helping persons with psychological problems. Includes demonstration and individualized practice in general helping skills as well as individual projects in applying these skills. For undergraduate credit only. *Course includes diversity content.* Prerequisite(s): PSY 111 and instructor's consent.

**PSY 544. Abnormal Psychology (3).**

An introductory survey of abnormalities of behavior. Examines definitions, causes, types and classifications of abnormal behavior. Covers various theories of abnormality, research evidence and various

methods of diagnosis and treatment. Presents hypotheses regarding prevention of abnormality. Prerequisite(s): PSY 324.

**PSY 556. Introduction to Clinical Psychology (3).**

A survey of current ethical, conceptual and research issues involved in the assessment and treatment of psychopathology. Reviews contemporary psychotherapies emphasizing the relative efficacy of each and the therapeutic mechanisms through which they initiate behavioral change. Prerequisite(s): PSY 324.

**PSY 559. Successful Aging: Theory, Research and Practice (3).**

Cross-listed as AGE 559, SCWK 559, and SOC 559. Reviews current interventions which promote successful aging. Theoretical bases of this work in biomedical and life span/developmental psychology are featured. Intended for students in the College of Health Professions, Liberal Arts and Sciences, and Engineering. *Course includes diversity content.* Prerequisite(s): AGE 100, or PSY 111, or SCWK 201, or SOC 111.

**PSY 559H. Successful Aging: Theory, Research and Practice Honors (3).**

Cross-listed as AGE 559, SCWK 559, and SOC 559. Reviews current interventions which promote successful aging. Theoretical bases of this work in biomedical and life span/developmental psychology are featured. Intended for students in the College of Health Professions, Liberal Arts and Sciences, and Engineering. *Course includes diversity content.* Prerequisite: AGE 100, or PSY 111, or SCWK 201, or SOC 111.

**PSY 568. Computer Applications to the Behavioral Sciences (3).**

Introduction to state of the art programming environments designed for psychological research. Students learn how to perform basic statistical analyses, program visual and auditory experiments, and analyze data. Applications include such areas as mathematical modeling and creating experiments. Previous programming experience is encouraged, but not required. Repeatable for credit with a change of content. Prerequisite(s): 9 hours in the social sciences.

**PSY 608. Special Investigation (1-3).**

Upon consultation with instructor, advanced students with adequate preparation may undertake original research or directed readings in psychological problems. Repeatable for a total of 6 credit hours. Requires consultation with, and approval by, appropriate adviser prior to registration. Prerequisite(s): 9 hours in psychology and instructor's consent.

**PSY 727. Selected Topics in Human Factors Psychology (3).**

Introduction to one of several special topics in the area of human factors. Students review relevant literature and learn theory and application of specific methodologies in a variety of work environments. Repeatable for credit. Prerequisite(s): instructor's consent.

**PSY 750. Psychology Workshop (1-3).**

Specialized instruction, using various formats in selected topics and areas of psychology.

**PSY 901. Graduate Research (1-3).**

Individual research. Prerequisite(s): advisor's consent and graduate standing.

**PSY 902. Advanced Research Methods I (4).**

3 Classroom hours; 3 Lab hours. Part one of a two-course sequence aimed at advanced treatment of statistical and research design issues. Statistical methods included are analysis of variance, analysis of covariance, multiple comparisons and multiple regression. Design issues include research planning, validity, quasi vs. experimental designs, prediction vs. explanation and modeling. The associated lab provides basic computer skills for access to the mainframe and some

basic training for EXCEL, and SPSS for Windows. Prerequisite(s): instructor's consent.

**PSY 903. Advanced Research Methods II (4).**

3 Classroom hours; 3 Lab hours. Continuation of PSY 902. Statistical techniques emphasized are a continuation of multiple regression, structural analyses including AMOS, factor analysis, canonical correlation and discriminant analysis. Includes advanced design issues. The associated lab provides additional computer skills for Excel, and SPSS for Windows. Prerequisite(s): PSY 902, instructor's consent.

**PSY 904. Biological and Philosophical Foundations of Psychology (3).**

Develops the idea that psychology is a biosocial science. Examines the philosophical foundations of science itself before exploring the biological foundations and contextual nature of psychological science. Readings cover biological factors as they pertain to psychology: evolution, genetics, maturation, functional neuroanatomy, physiology. Includes critical reviews of genetic determinism, neural localization and hemispheric specialization. Prerequisite(s): instructor's consent.

**PSY 905. Cognitive/Learning Foundations of Behavior (3).**

Focuses on how human beings learn, maintain and modify behavior, and how cognitive knowledge is acquired, maintained, represented and used. Serves as an integrated resource of the main issues and the theoretical questions investigated in the psychology of learning and cognition. A basic understanding of classical and instrumental conditioning, and the cognitive processes of memory, language, speech, thought, decision making and problem solving are provided. Prerequisite(s): instructor's consent.

**PSY 906. Assessment of Personality and Individual Differences (3).**

Reviews psychometric principles underlying assessment of individual differences in cognition and personality. Major approaches to assessment of normal personality variables are examined. Students self-administer several personality instruments and assess a client under supervision. Prerequisite(s): instructor's consent.

**PSY 907. Social and Developmental Foundations of Behavior (3).**

Examines basic assumptions, theories and methods in social and developmental psychology. Describes and analyzes research concerning the functional significance of social relationships for development and the embeddedness of behavior in social, ecological and cultural contexts, focusing on a number of substantive issues such as person perception and social cognition, affiliation and attachment, socialization and interpersonal interaction, social support, and social roles and contexts over the life span. Considers the applications of theories of attribution, attitude change, group functioning and attachment to current social problems. Prerequisite(s): instructor's consent.

**PSY 908. Doctoral Dissertation (1-3).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for credit. Prerequisite(s): admission to candidacy and instructor's consent.

**PSY 909. Preproposal Research (1-3).**

A research course for students who have completed the second year project but have not taken qualifying examinations. Focuses on the first steps in developing a dissertation proposal. May be taken an unlimited number of times.

**PSY 911. Teaching of Psychology: Principles, Practices and Ethics (1-3).**

Prepares doctoral students in psychology to assume undergraduate teaching duties. Presents basic pedagogical tools as well as university and departmental policies and procedures. Students learn about

opportunities to incorporate technology in the classroom and have several occasions to observe and practice teaching. Introduces students to important ethical issues that confront teachers of psychology and provides strategies for handling ethical dilemmas. Psychology graduate students are required to complete 3 credit hours of this course or have equivalent experience before teaching. Partially fulfills the university's professional and scholarly integrity training requirement covering research misconduct, publication practices and responsible authorship, conflict of interest and commitment, ethical issues in data acquisition, management, sharing and ownership.

**PSY 912. Seminar on Cultural Diversity (3).**

Examines theoretical frameworks and develops culturally appropriate strategies in therapy and prevention efforts in the community. Emphasizes understanding the importance of culture and how it may impact treatment and prevention outcomes. Focuses on developing skills to work effectively with diverse populations. Prerequisite(s): instructor's consent.

**PSY 920. Psychological Principles of Human Factors (3).**

Focuses on the interaction of people with machines and technology in a variety of environments. Provides depth to the topics surveyed in PSY 405 and serves as a means of integrating cognitive, biological and perceptual psychology in applied settings. Prerequisite(s): completion of undergraduate course in cognitive psychology or PSY 905; and instructor's consent after interview for doctoral students from other disciplines.

**PSY 921. Seminar in Human Factors (3).**

Focuses on a sample of contemporary human factors problems through review of current literature and theory. Content changes as new problems attain prominence internationally, but a typical sample might be human factors in the aging population; human factors in airport security and baggage marking; and human factors in third-world industrialization. Prerequisite(s): completion of 9 hours of foundations of psychology doctoral courses; for doctoral students from other disciplines, instructor's consent after an interview.

**PSY 922. Seminar in Software Psychology (3).**

Intensive study of principles and methods of engineering psychology (human factors) applied to the design and evaluation of computer software. Includes research methods, programming as human performance, programming style, software quality evaluation, organizing the programming team, interactive interface issues, and the design of interactive computer systems. Prerequisite(s): instructor's consent.

**PSY 925. Seminar in Perception (3).**

Intensive study in theory and research in perceptual processes. Prerequisite(s): PSY 409, or equivalent and instructor's consent.

**PSY 926. Internship in Human Factors Psychology (1-3).**

Repeatable for credit up to 6 hours. A planned placement experience in an off-campus setting, giving the doctoral human factors psychology student an opportunity to apply the principles of human factors psychology. Prerequisite(s): adviser's consent.

**PSY 940. Seminar in Community-Clinical Psychology (3).**

Introduces basic historical, conceptual, research, methodological and ethical issues in community-clinical psychology. Examines the responsibilities and roles of psychologists in the promotion of human functioning. Reviews models and determinants of human behavior from individual, developmental and ecological/contextual perspectives. Details the reciprocal relationship between research and practical applications of psychological knowledge and the application of that knowledge to human psychosocial problems. Prerequisite(s): instructor's consent.

**PSY 941. Applied Research Methods in Community Settings (3).**

An examination of research methods which are used in community settings to develop and evaluate programs. Regarding program development, there is discussion of different data collection strategies used to assess community needs. Explores a variety of topics related to program evaluation including research design issues, developing criteria of merit, and the politicization of program evaluation. Prerequisite(s): instructor's consent.

**PSY 942. Seminar in Community and Organizational Intervention (3).**

Focuses on the development and/or change of community-based programs and organizations and the implementation and funding of community-based programs. Explores the theoretical and conceptual basis of these interventions, drawing on material from community psychology, public health and applied social psychology. Helps prepare students to become involved as professionals in community-based health or mental health interventions in a variety of roles: as program developers, proposal writers, program implementers and program managers. Prerequisite(s): instructor's consent.

**PSY 943. Seminar in Prevention (3).**

Reviews the historical, theoretical and empirical bases of prevention psychology. Presents contemporary models of prevention psychology including the ecological, social and community mental health perspectives. Could include primary prevention, empowerment, community-based prevention, self-help, social policy and the prevention of psychosocial problems through environmental intervention. Prerequisite(s): instructor's consent.

**PSY 944. Practicum in Community Psychology (1-3).**

Provides supervised practice working in community-based organizations on such tasks as needs assessment, program development and program evaluation. Organizational settings may be in the areas of mental health and education. Services may be prevention-oriented. Repeatable for credit. Prerequisite(s): instructor's consent.

**PSY 948. Seminar in Community Leadership (3).**

Seminar explores contemporary principles of community leadership from a community psychology framework. In an interactive and applied learning format, this seminar focuses on relevant theory, research, best practices and experiential knowledge regarding community leadership to gain understanding of key concepts and practices of leadership, develop individual leadership skills based on personal strengths, be introduced to the breadth of opportunity for civic and community engagement, and gain leadership skills to become more effective in improving community and civic life. Prerequisite(s): instructor's consent.

**PSY 949. Seminar in Community Advocacy and Social Policy (3).**

Seminar explores contemporary principles of community advocacy and social policy from a community psychology framework. In an interactive and applied learning format, this seminar focuses on relevant theory, research, best practices and experiential knowledge regarding community advocacy and social policy to gain an understanding of key concepts and practices of grassroots advocacy and the development and implementation of social policy. Opportunities for civic and community engagement to gain skills for a more effective community are provided. Prerequisite(s): instructor's consent.

**PSY 960. Ethical and Professional Issues in Clinical Psychology (3).**

Focuses on several pertinent professional, legal, ethical and related issues and concerns that impact the self-identity, credentialing, practice and status of contemporary clinical psychology. Includes an historical overview of the development of both the discipline and profession of clinical psychology; professional associations that represent each; the

credentialing and education/training of clinical psychologists; and how the practice of clinical psychology is governed and impacted by the APA Ethical Code, related laws and associated judicial rulings such as Tarasoff, and professional practice standards.

**PSY 961. Seminar in Cognitive-Behavioral Assessment (3).**  
Surveys standards used in evaluating the quality of cognitive-behavioral assessment techniques and procedures. Provides a description, critical analysis and conceptualization of how such assessment methods as interviewing, behavioral observations, self-monitoring, self-report inventories, and standardized intelligence testing can be used to meet the goals of a cognitive-behavioral approach to psychological assessment. Prerequisite(s): instructor's consent.

**PSY 961L. Cognitive-Behavioral Assessment Lab (1).**  
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**PSY 962. Seminar in Cognitive-Behavioral Therapy (3).**  
3 Classroom hours; 3 Lab hours. Reviews the theoretical and empirical support for specific behavior therapeutic practices. Approaches may include systematic desensitization, flooding, contingency management techniques and cognitive therapies. Also discusses the interface between behavioral assessment and clinical practice. Prerequisite(s): instructor's consent.

**PSY 962L. Cognitive-Behavioral Therapy Lab (1).**  
Supplements PSY 962 by providing students with hands-on training and experience with an array of techniques and procedures used in conducting psychological interventions from a cognitive-behavioral perspective. Covers reinforcement procedures, desensitization, cognitive therapy, dialectical behavior therapy, and self-regulation procedures. Prerequisite(s): instructor's consent. Corequisite(s): PSY 962.

**PSY 963. Practicum in Clinical Psychology (1-3).**  
Gives the student further experience in developing clinical skills. Students are supervised in their clinical work with individual clients seen through the department clinic, and/or other appropriate sites. Repeatable for credit. Prerequisite(s): instructor's consent.

**PSY 964. Development of Abnormal Behavior (3).**  
Considers the descriptive characteristics of abnormal behavior; a developmental perspective. Considers the ecological, social-environmental, personal, and genetic-biological contexts and causes of such behavior. Discusses implications for preventative and clinical interventions. Prerequisite(s): instructor's consent.

**PSY 965. Special Issues in Psychological Assessment (1-4).**  
Covers contemporary and developing approaches to psychological assessment identified by the department. Course procedures and content vary according to topic. Repeatable for credit. Prerequisite(s): departmental or instructor's consent.

**PSY 966. Special Issues in Psychotherapeutic Interventions (1-4).**  
Covers contemporary and developing approaches to psychotherapy identified by the department. Course procedures and content vary according to topic. Repeatable for credit. Prerequisite(s): departmental or instructor's consent.

**PSY 966E. Marriage and Family Therapy (1).**  
This workshop explores the human experience of shared self in couple relationships. Discussion addresses techniques for applying various models of marriage and family therapy to help clients sustain more supportive and satisfying relationships. Individual, interactional, intergenerational and cultural aspects of systems theories are considered. Participants gain familiarity with theoretical concepts of change, emphasis on interactions and systems, and the role of the therapist.

**PSY 966L. Accept and Commitment Therapy (3).**  
Covers contemporary and developing approaches to psychotherapy identified by the department. Prerequisite(s): departmental or instructor's consent.

**PSY 966M. Long Term Exposure Therapy for PTSD (1).**  
Covers contemporary and developing approaches to psychotherapy identified by the department. Course procedures and content vary according to topic.

**PSY 975. Seminar in Psychotherapy (3).**  
Provides an in-depth description and critical analysis of various theories and methods of psychotherapy, an examination of the efficacy of these therapeutic approaches, and a survey of common issues in psychotherapy, such as process and outcome, and client and therapist variables in the therapeutic process. Prerequisite(s): PSY 111 and instructor's consent.

**PSY 976. Advanced Psychopathology (3).**  
An overview of major categories of psychopathology consistent with the most recent edition of the Diagnostic and Statistical Manual of Mental Disorders. Reviews descriptive features of each diagnostic category and information on the clinical course and etiology. Examines differing definitions of psychopathology and paradigmatic approaches to the study of psychopathology. Prerequisite(s): instructor's consent.

**PSY 977. Internship in Clinical Psychology (1-3).**  
A planned one-year supervised clinical internship at an off-campus site approved by APPIC for training in clinical psychology. Gives the clinical student an opportunity to further develop and employ clinical skills in an applied supervised training setting. Prerequisite(s): advisor's consent.

**PSY 979. Seminar in Personality Assessment (3).**  
Introduces students to organizing theories of personality and how personality frameworks allow for the conceptualization and assessment of psychopathology. Designed to teach students about the appropriate administration, usage and interpretation of major personality assessment instruments, such as the MMPI-2, MCMI-III, and PAI. Discusses how personality can be assessed at different levels of functioning and with differing methodologies, and how these methods must be carefully considered in understanding the whole person. Students learn how to write an assessment report with attention devoted to how findings from various measures and methods converge and diverge.

**PSY 990. Seminar in Current Developments (1-3).**  
Intensive study of current issues, techniques, research and application. Repeatable for credit up to 6 hours with a change of content. Prerequisite(s): instructor's consent.

## PT - Physical Therapy

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**PT 700. Pathophysiology for PT (3).**  
Focuses on the differentiation of major disease pathophysiology at the micro and macro levels. Content is specific to physical therapists and emphasizes causes and effects on the overall physical capacities of a patient/client as they relate to prevention and rehabilitation.

**PT 708. Introduction to Professional Practice I (2).**  
Focuses on foundational concepts of the profession of physical therapy and doctoring professions. Knowledge in psychological development and dynamics is related to interactions with patients and clients. Students have the opportunity to evaluate individual values and personality preferences that influence their interactions with others, and to develop interpersonal skills for working effectively with patients,

families and professional colleagues. Appreciation of psychological and social diversity is emphasized.

**PT 709. Foundations of Therapeutic Exercise (3).**

An introduction to the scientific principles of therapeutic exercise foundations and techniques for physical therapists. Designed to follow the Guide to Physical Therapist Practice. Laboratory sessions include skill development for safe, effective use of commonly used therapeutic exercise equipment.

**PT 724. Culturally-Informed Care (3).**

Examines the importance of culturally-informed care as a professional responsibility in clinical practice. Designed for critical examination of cultural competency, exploration of health disparity, and development of skills for providing person-centered care. Students additionally are challenged to develop an advanced understanding of the role of culture in health care and to apply cultural responsiveness within the clinical context. Format includes lecture, discussion, reflection, film, case studies and follow-up clinical rotation, reflection and evaluation.

**PT 725. Anatomy for Physical Therapists (6).**

Presents a regional approach to the structure of the human body, using supervised dissection of human cadavers, observation of prosected materials, radiographic films and anatomical models. Emphasis is placed on surface anatomy and the neuromuscular, cardiovascular and skeletal systems.

**PT 731. Clinical Kinesiology (3).**

Details and analyzes kinesiological and biomechanical foundations that are required to differentiate causes of musculoskeletal dysfunction.

**PT 736. Physical Agents (3).**

Presents concepts and practical applications of a host of therapeutic modalities. Indications, contraindications and the appropriateness of these modalities are assessed.

**PT 741. Clinical Practicum and Seminar I (2).**

The first of a two-course series that builds on the integration of physical therapy knowledge, skills and professional values within a seminar setting and part-time clinical experience. A variety of professional and practice issues are examined, and the student gains observational experiences in a variety of acute, outpatient and rehabilitation settings.

**PT 751. Foundations of Research (2).**

Critical analysis of the scientific literature focusing on design and statistics for physical therapy and related disciplines. Successful completion of this course gives the student a foundation for designing and interpreting a research project or paper.

**PT 755. Clinical Pharmacology for Physical Therapists (2).**

Details major classes of pharmacological agents. Pharmacokinetics, mechanisms of action, side effects, drug interactions, contraindications, therapeutic use and appropriate drug monitoring are addressed. Clinical application of this knowledge emphasizes the physical therapist's role in assessment, management and proper referral of patients experiencing subtherapeutic benefits or drug-related problems.

**PT 761. Clinical Practicum and Seminar II (2).**

The second of a two-course series that culminates with the integration of physical therapy knowledge, skills and professional values within a seminar setting and part-time clinical experience. A variety of professional and practice issues are examined, and the student gains observational experiences in a variety of acute, outpatient and rehabilitation settings.

**PT 770. Musculoskeletal Clinical Medicine (2).**

Differentiates etiology, diagnosis, pathology, medical treatment and prognosis for orthopedic conditions that are managed by physical therapists.

**PT 771. Critical Inquiry I (2).**

The first in a series of three consecutive research application courses following Foundations of Research for physical therapy and related disciplines. Students work with an assigned adviser to plan either a research project or a research paper, that will be implemented and evaluated in subsequent courses.

**PT 772. Foundations of Clinical Skills (2).**

Provides specialized instruction for common patient care skills including bed positioning, transfers, gait training with assistive devices, vital signs, infection control and selected screening tests.

**PT 773. Neuroscience I (2).**

First of two courses describing the relationship of structure and function of the nervous system with selected neuromuscular conditions. Specifically covers the spinal cord, cerebral cortex, autonomic nervous system, and the effects of injury/disease to these structures. For students enrolled in physical therapy education program.

**PT 774. Neuromuscular Interventions I (2).**

First of three courses detailing examination, assessment and interventions for patients with neuromuscular conditions. Patients with spinal cord injuries and cerebral vascular accident are assessed and evaluated.

**PT 781. Foundations of Musculoskeletal Examination and Intervention (3).**

Emphasizes the scientific foundation and clinical rationale used during assessment, evaluation and intervention with musculoskeletal conditions. Provides specialized instruction in the art of palpating surface anatomy, performance of manual muscle testing, and goniometric measurements. An emphasis is placed on the clinical and scientific literature pertaining to evaluation and treatment of musculoskeletal conditions.

**PT 790. Selected Topics in Physical Therapy (1-4).**

Intensive study of current issues, technology, research and application of selected topic.

**PT 799. Experimental Course (1-4).**

One-time course offerings.

**PT 799C. Owning a Private Practice (1).**

This course is an introduction and an overview of owning a private practice in physical therapy. The student will be exposed to various aspects of practice ownership to include start-up, finances, marketing, insurance credentialing and reimbursement, and management. In addition, the student will develop an understanding of how the overall climate of the U.S. healthcare system affects physical therapy private practices.

**PT 799D. Screening for Medical Referral (1).**

This course will teach the student to screen for conditions not amenable to treatment by a physical therapist or that require consultation/referral to other providers. It will explore the physical therapist's role as an independent practitioner working within a collaborative medical model. This course will also teach the student to use clinical tools and decision-making processes necessary to efficiently and effectively collect and evaluate the history and physical examination data, and to communicate professionally with the patient and other health care professionals.

**PT 821. Professional Practice I (2).**

The first of two courses designed to provide students with an overview of health systems, health regulation, risk management, and administrative theory and principles as related to the practice of physical therapy. Primary focus is health policy and health systems.

**PT 831. Musculoskeletal Management of the Upper Quarter (3).**

Emphasizes the scientific foundation and clinical rationale used during assessment, evaluation and intervention with musculoskeletal

conditions. Builds on the foundations from various courses during the first year of the DPT curriculum. It provides an in-depth study of different injuries and lesions, specific evaluation techniques, and treatments of those injuries and pathologies of the upper quarter. Emphasis is placed on organizing and synthesizing information from courses throughout the physical therapy curriculum to allow integration of problem-solving skills that enables students to better make the transition from students to competent practicing physical therapists.

**PT 840. Directed Study (1-3).**

Individual study with a focus developed in collaboration with a departmental faculty member. Allows students to pursue an area of special interest in physical therapy.

**PT 848. Life Span of the Adult (2).**

Focuses on the relationship of structure and function to the development of movement skills through older age. First of two courses.

**PT 851. Critical Inquiry II (2).**

The second in a series of three consecutive research application courses following Foundations of Research for physical therapy and related disciplines. Students work with an assigned adviser to collect data, complete statistical analyses (as appropriate), and complete a preliminary draft of either a research project or a research paper.

**PT 852. Clinical Education I (8).**

Prepares the student to provide physical therapy care in varied settings requiring communication and interpersonal relations skills, professional socialization, application of physical therapy procedures, beginning development of a generalist in physical therapy.

**PT 853. Neuroscience II (2).**

Second of two courses describing the relationship of structure and function of the nervous system with selected neuromuscular conditions. Specifically covers the brainstem, cerebellum, basal ganglia and diencephalon, and the effects of injury/disease to these structures. For students enrolled in physical therapy education program.

**PT 854. Neuromuscular Interventions II (2).**

Second of three courses detailing examination, assessment and interventions for patients with neuromuscular conditions. Patients with problems of the visual system and the basal ganglia are assessed and evaluated.

**PT 858. Prosthetics & Orthotics (2).**

Addresses selected integumentary system conditions and special conditions. Focuses on examination, clinical decision making, and treatment planning for patients/clients with these conditions. Interventions using prosthetics and orthotics are emphasized. Roles of other health care team members including prosthetists and orthotists and interactions with physical therapists are discussed relative to these conditions.

**PT 859. Integumentary Conditions and Acute Care (2).**

Addresses selected integumentary system conditions and the acute care practice setting. Focuses on examination, clinical decision making, and treatment planning for these conditions. Roles of other health care team members and interactions with physical therapists in the acute care settings are discussed relative to integumentary conditions. Prerequisite(s): departmental consent.

**PT 861. Professional Practice II (2).**

The second of two courses designed to provide students with an understanding of health systems, health regulation, risk management, and administrative theory and principles as related to the practice of physical therapy. The primary focus is understanding legal concerns, risk management, and planning, applying and interviewing for employment in the physical therapy profession.

**PT 871. Critical Inquiry III (2).**

The third in a series of three consecutive research application courses following Foundations of Research for physical therapy and related disciplines. Students work with an assigned adviser to finalize and disseminate either a research project or a research paper and give a formal oral presentation of their work.

**PT 874. Neuromuscular Interventions III (2).**

Third of three courses detailing examination, assessment and interventions for patients with neuromuscular conditions. Patients with problems of sensory integration, motor control and the vestibular system are assessed and evaluated.

**PT 877. Clinical Knowledge and Practice in Cardiovascular and Pulmonary Conditions (3).**

Develops clinical skills in examining, assessing and managing patients/clients with cardiovascular and pulmonary impairments. Common pathophysiology of the cardiovascular and pulmonary system are covered.

**PT 881. Musculoskeletal Management of the Lower Quarter (3).**

Reviews the basic scientific foundation and clinical rationale used during evaluation, assessment and treatment of musculoskeletal conditions of the lower quarter. Elaborates on the foundations brought forth from various courses during the first year of the DPT curriculum. Evokes an in-depth study of different injuries and lesions, specific evaluation techniques, and treatments of those injuries and pathologies. Emphasis is placed on organizing and synthesizing information from courses throughout the physical therapy curriculum to allow integration and problem-solving skills that enables students to better make the transition from students to competent practicing physical therapists.

**PT 891. Musculoskeletal Management of the Cervical/Thoracic Spine and TMJ (2).**

Introduces the student to the basic scientific foundation and clinical rationale used during evaluation, assessment and treatment of musculoskeletal conditions of the cervical/thoracic spine and TMJ. Designed to build on the foundations brought forth from previous courses. Studies in depth different injuries and lesions, specific evaluation techniques, and treatment of those injuries and pathologies of the cervical spine, thoracic spine and TMJ. Emphasis is placed on organizing and synthesizing information from courses throughout the physical therapy curriculum to allow integration and problem solving skills that enable students to better make the transition from students to competent practicing physical therapists.

**PT 892. Musculoskeletal Management of the Lumbar Spine and Pelvis (2).**

Introduces the student to the basic scientific foundation and clinical rationale used during evaluation, assessment and treatment of musculoskeletal conditions of the lumbar spine and pelvis. Designed to build on the foundations brought forth from previous courses. Studies in depth different injuries and lesions, specific evaluation techniques, and treatments of those injuries and pathologies of the lumbar spine and pelvis. Emphasis is placed on organizing and synthesizing information from courses throughout the physical therapy curriculum to allow integration and problem solving skills that enables students to better make the transition from students to competent practicing physical therapists.

**PT 894. Differential Diagnosis: Screening for Medical Referral (2).**

Provides the student with knowledge and skills to screen patients for non neuro-musculoskeletal conditions, interpret clinical findings, and make clinical decisions to include referring a patient to another health care provider when the patient's problems are suspected to be beyond the scope of physical therapy practice. Using diagnostic theory and

processing skills, the student learns to perform a complete and thorough history and relevant regional physical examination of patients.

**PT 898. Life Span of the Infant & Child (2).**

Focuses on the relationship of structure and function to the development of movement skills from birth through adolescence. Second of two courses.

**PT 899. Principles of Education for Physical Therapists (2).**

Applies teaching and learning theories as they apply to physical therapy education of patients, students, health professionals and community. Methods of evaluating instruction, content, strategies and learners are included.

**PT 905. Manual Physical Therapy (2).**

Course specializes in teaching advanced orthopedic manual physical therapy techniques. Designed to follow the Guide to Physical Therapist Practice. Laboratory sessions include skill development for safe, effective use of manual therapy techniques, including mobilizations and manipulations. Prerequisite(s): departmental consent.

**PT 934. PT Advanced Strength and Conditioning in the Athletic Population (2).**

Introduces the student to the basic foundation of strength and conditioning principles. Includes education related to assessment of strength and power in the athletic population, adaptations to such training, and program design for this specialized population. Designed for physical therapists ultimately seeking specialization in the area of athletic strength and conditioning, with goals of pursuing certification in Olympic weightlifting and/or as a certified strength and conditioning specialist.

**PT 943. Practice Management (2).**

Designed for the student whose goals are to manage a therapy department and/or start a private practice. Familiarizes students with assessing the marketplace, developing policies and procedures for the department/practice, planning and designing a facility, hiring personnel and other staffing considerations, marketing the department/practice, budgeting, knowing requirements necessary to meet local, state and federal regulations, and developing a business plan. The student partners with an appropriate mentor.

**PT 951. Evidence-Based Practice (1).**

Focuses on the use of current best evidence from clinical care research in the management of patients. Students gain knowledge of how to understand and appraise evidence from research.

**PT 953. Clinical Education II (10).**

First in a series of three 10-week courses offering continued development of clinical management of patients in varied clinical settings. Includes managerial aspects of care, teaching and some opportunities for clinical research.

**PT 954. Clinical Education III (9).**

Second in a series of three 10-week courses offering continued development of clinical management of patients in varied clinical settings. Includes managerial aspects of care, teaching and some opportunities for clinical research.

**PT 955. Clinical Education IV (9).**

Last in a series of three 10-week courses offering continued development of clinical management of patients in varied clinical settings. Includes managerial aspects of care, teaching and some opportunities for clinical research.

**PT 961. Women's Health Physical Therapy (1).**

Introductory course in the study of anatomy, diagnosis and treatment of topics in women's health physical therapy. Topics include evaluation and treatment techniques for obstetrical and postpartum clients, urinary

and fecal incontinence, chronic pelvic pain, osteoporosis and female athlete considerations.

**PT 975. Diagnostic Imaging for the Physical Therapist (1).**

Normal and abnormal radiographic findings in the spine and extremities are covered. Cinemariography, functional radiographs, MRI, CT-Scan and tomography are studied. A variety of pathologies affecting the practice of physical therapy are identified. Radiographic findings are correlated to common surgical procedures seen by the physical therapist. Radiographic findings as well as physical findings that require prompt referral to other disciplines within the health care team are also addressed.

**PT 980. Licensure Exam Review (1).**

Students review and apply knowledge and skills learned in preceding academic semesters and clinical education experiences, learn test taking strategies, and develop a comprehensive study plan to assist them in preparing for the National Physical Therapy Examination.

**PT 990. Clinical Conference I (1).**

Forum for discussion of a clinical case presented by a group of students. Facilitates application and integration of didactic information from the classroom into clinical practice by expanding clinical problem solving through examination of clinical cases. A formal presentation covering selected background information is followed by a presentation of the case. Ideally, research supporting the reliability/validity of evaluation tools and efficacy of treatment is presented as well. Designed to afford students the opportunity to work as a team to present clinical cases to their peers and faculty.

## RE - Real Estate

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**RE 611. Real Estate Finance (3).**

Cross-listed as FIN 611. Covers the institutions and instruments used to finance residential and commercial properties, and provides essential knowledge and skills for students who are interested in a career as a commercial banker, mortgage banker or an analyst or investor in mortgage-related securities. Topics include fixed-rate and alternative mortgage instruments, financial analysis and decision making, residential mortgage underwriting, mortgage market regulations, primary and secondary mortgage market structure and institutions, and mortgage-backed securities. Prerequisite(s): FIN 340 with a grade of C or better, junior standing, advanced standing.

**RE 614. Real Estate Appraisal (3).**

Provides in-depth coverage of the methods used to estimate the value of residential and commercial properties. Students learn about the sales-comparison, cost and income-capitalization approaches for appraising real estate. (Note: non Barton School students do not need special permission to enroll in this course.) Prerequisite(s): junior standing. RE 310 recommended for students with a declared emphasis in real estate.

**RE 618. Real Estate Investment Analysis (3).**

Cross-listed as FIN 618. Covers the tools and techniques used to evaluate the financial profitability of real estate investments, as well as real estate decisions affecting businesses. Students learn about pro forma and discounted cash flow analysis of real estate, the effects of leverage on real estate investments, federal tax treatment of real estate investments, and disposition and renovation decisions. In addition, topics such as lease-versus-own analysis, sale-leasebacks and other corporate real estate issues are discussed. Prior enrollment in RE 310 recommended for students with a declared emphasis in real estate.

Prerequisite(s): FIN 340 with a grade of C or better, junior standing, advanced standing.

**RE 619. Urban Land Development (3).**

A hands-on course focusing on the challenges and opportunities associated with real estate development projects. Class time is devoted to analyses of actual development projects, with numerous guest lecturers and field trips. Topics covered include market and feasibility analysis, site selection, development financing, ownership structures and marketing strategies. (Note: non Barton School students do not need special permission to enroll in this course.) Prerequisite(s): junior standing and RE 310, or admission into either the Master of Public Administration or Master of Business Administration program; students with a declared emphasis in real estate are strongly recommended to take as many other real estate classes as possible before taking RE 619.

**RE 690. Seminar in Selected Topics (1-5).**

Repeatable for credit with departmental consent. Prerequisite(s): junior standing, advanced standing.

**RE 691. Independent Study/Project (1-3).**

Courses may be of two general types. The first consists of doing research, readings or other scholarly investigation in a subject area that is coordinated by a faculty member. The topic and scope is mutually agreeable to the student and the faculty member. The second consists of doing a specific project for an organization, which might require the student to do research. The student may be embedded in an organization (either with or without pay) and under the direction of an organizational representative and a faculty member in order to accomplish a specific project. In either case, the course cannot be used to substitute for a regular departmental course. Repeatable for credit. Prerequisite(s): 2.750 GPA in the academic area, junior standing, advanced standing, departmental consent.

**RE 709. Urban Economics (3).**

Cross-listed as ECON 709 and PADM 709. Surveys the economic structure and problems of urban areas on both the microeconomic and macroeconomic levels. Stresses the application of regional economic analysis in the study of urban areas as economic regions. Prerequisite(s): ECON 201, 202, junior standing.

**RE 750. Workshop in Real Estate (1-4).**

Prerequisite(s): junior standing.

**RE 890. Seminar in Special Topics (1-3).**

Repeatable for credit with departmental consent.

## REL - Religion

**Although there is no graduate program in religion, the following courses may be taken for graduate credit.**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**REL 542. Religion in America (3).**

Cross-listed as HIST 542. Surveys various religious traditions in American history from Colonial times to the present. Discusses how religions, groups, beliefs and issues have changed over time and how they interact with each other. Includes the different branches of Christianity and Judaism, the study of awakenings and revivals, the stories of prominent religious thinkers and leaders, immigrant religious traditions, the tensions between liberal and traditional religious forms, the prophetic and apocalyptic traditions in American, and the impact of Native American, Asian and African beliefs and practices on the religious landscape.

**REL 576. The Reformations: From Heresies to Diversity (3).**

*General education humanities course.* Cross-listed as HIST 576. Studies the religious changes in the 16th century in political, social and intellectual contexts. Includes the Medieval and Renaissance background of the reformations and the major doctrinal issues that separated Catholic and Protestant groups. Explores how major figures and movements developed their theologies and political strategies from the 15th century through the Catholic Reformation and the Thirty Years' War. Additionally, explores what these reformations mean for us in the 21st century world of religious pluralism.

**REL 780. Special Topics in Religion (1-3).**

Intensive study of topic(s) in religion. Discussion, reports and research projects. Repeatable for credit with departmental consent. Prerequisite(s): instructor's consent.

**REL 790. Independent Study (1-3).**

For the student who is capable of doing graduate work in a specialized area of the study of religion not formally offered by the department. Repeatable for credit. Prerequisite(s): departmental consent.

## SCWK - Social Work

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**SCWK 521. Forensic Social Work (3).**

Cross-listed as CJ 521. Introduction to and overview of the field of forensic social work. Course content focuses on the role of social workers in forensic arenas, and the issues related to recent practice trends, relevant theoretical frameworks, collaborative team roles, and multisystem interactions. Psychosocial and legal issues are explored, with particular focus on intersections with family and social services, education, child welfare, mental health, substance abuse, criminal justice, diversity and human rights. Prerequisite(s): 6 hours of social sciences.

**SCWK 531. Social Work Practice in Addictions (3).**

Prepares students for social work practice in the field of substance abuse and to intervene effectively when working in other areas where addictions are a concern. Includes content on the epidemiology of alcoholism and drug addiction, intervention approaches and prevention, public policy toward the regulation of drugs and their consequences, and the treatment of chemical dependency among special populations. Included in the curriculum to fulfill requirements for the Licensed Addiction Counselor (LAC) with the Behavioral Sciences Regulatory Board (BSRB). The program requires an addiction treatment focused practicum. Interested students should be advised by the social work adviser assigned to this program. Replaces SCWK 610V effective fall 2013.

**SCWK 532. Pharmacology and Drug Classification in Social Work (3).**

Prepares students for social work practice in the field of substance abuse and to intervene effectively when working in other areas where addiction may be a concern. It includes psychological, physiological and sociological effects of mood altering substances and behaviors and their implications for the addiction process. An emphasis on pharmacological effects of tolerance, dependency/withdrawal, cross addiction and drug addiction are covered. Understanding common patterns and causes of drug use among subcultures of diverse populations is included. Included in the curriculum to fulfill requirements for the Licensed Addiction Counselor (LAC) with the Behavioral Sciences Regulatory Board (BSRB). The program requires an addiction treatment focused practicum. Interested students should be advised by the social work adviser assigned to this program.

**SCWK 541. Women, Children and Poverty (3).**

*General education social and behavioral sciences course.* Cross-listed as WOMS 541. Addresses the problem of poverty among women in the U.S. today, and examines existing and proposed public policies designed to alleviate the problem. Explores theoretical models of poverty policy analysis and the role of values in their formulation and implementation. Discusses issues of age, race and family; special attention is given to poverty among Kansas families. *Course includes diversity content.* Prerequisite(s): 6 credit hours of social science.

**SCWK 542. International Social Work (3).**

Introduces the student to international social work and social welfare policy. Provides an overview of micro and macro practice outside of one's own culture and internationally that facilitates skill development in cross-cultural assessment and intervention at the individual, group and community levels. It includes a history of international social work, community and social development. Course examines social problems, policies, programs, services, and national and multinational responses as well as current trends in the global community.

**SCWK 551. Independent Studies (1-3).**

Individual projects for social work students who are capable of doing independent work in areas of special interest. Repeatable for credit up to 6 credit hours. Prerequisite(s): instructor's consent.

**SCWK 559. Successful Aging: Theory, Research and Practice (3).**

Cross-listed as AGE 559, PSY 559 and SOC 559. Reviews current interventions which promote successful aging. Theoretical bases of this work in biomedical and life span/developmental psychology are featured. Intended for students in the College of Health Professions, Liberal Arts and Sciences, and Engineering. *Course includes diversity content.* Prerequisite(s): AGE 100, or PSY 111, or SCWK 201, or SOC 111.

**SCWK 559H. Successful Aging: Theory, Research and Practice Honors (3).**

Cross-listed as AGE 559, PSY 559 and SOC 559. Reviews current interventions which promote successful aging. Theoretical bases of this work in biomedical and life span/developmental psychology are featured. Intended for students in the College of Health Professions, Liberal Arts and Sciences, and Engineering. *Course includes diversity content.* Prerequisite: AGE 100, or PSY 111, or SCWK 201, or SOC 111.

**SCWK 571. Contemporary Issues and Perspectives: LGBTQ (3).**

*General education social and behavioral sciences course.* Cross-listed as WOMS 571. Explores contemporary issues within the lesbian, gay, bisexual, transgender and queer communities. Explores personal attitudes regarding the social context for LGBTQ persons as well as other issues which have emerged as matters of concern and celebration with LGBTQ individuals and communities. Empowerment principles are employed and used to highlight a positive and affirming framework of the LGBTQ community. Students acquire basic skills in understanding issues of diversity and other contemporary conditions of life and culture. *Course includes diversity content.*

**SCWK 572. Social Work Practice with Families of Diverse Cultures (3).**

Introduces students to the global context of working with diverse families. Provides students with working knowledge, skills, and practice models for developing cultural competence when working with diverse families. Enhances students' knowledge, skills and ethics to contribute to more effective and competent practice with diverse families. *Course includes diversity content.*

**SCWK 590. Domestic Violence (3).**

Cross-listed as WOMS 580J, CJ 522 and CJ 381V. Deals with the roots of domestic violence embedded in family roles, legal systems, religious

beliefs, and the psychology of women, children and men. Also covers the consequences and prevention of family abuse. Includes discussion of literature and films. *Course includes diversity content.*

**SCWK 610. Topics In Social Work (1-3).**

Selected topics in practice, policy, research and human behavior in the social environment within a selected field of social welfare. Covers specific topics identified by the program in consultation with majors, groups of community practitioners, and area service institutions. Repeatable for credit. Prerequisite(s): instructor's or program consent.

**SCWK 611. Special Topics in Social Work (1-3).**

Special topics in practice, policy, research and human behavior in the social environment within a selected field of social welfare. Covers specific topics identified by the program in consultation with majors, groups of community practitioners, and area service institutions. Repeatable for credit. Prerequisite(s): instructor's or program consent.

**SCWK 611C. Domestic Human Trafficking (3).**

Cross-listed as PHS 575C. This course will build on the undergraduate and graduate student's knowledge in working with individuals, groups, and communities with a specific focus on populations at-risk of and/or subjugated to domestic trafficking. With specialized instruction regarding domestic human trafficking, particularly domestic minor sex trafficking, this course aims to equip students with the practice knowledge, skills, and ethics in order that they might engage in effective anti-trafficking responses. Topics covered within this course include: forms of human trafficking; those involved; risk and resiliency factors; prevention; and direct-services through the prevention, assessment, identification, intervention/restoration, and termination/transition/prosperity process (Countryman-Roswurm, 2015).

**SCWK 611Q. Social Work in Sports (3).**

Cross-listed as CLES 750V. Explores the role of social work practice in serving the holistic needs of an athlete while understanding their involvement in the culture of sport. Explores the vulnerabilities and resiliencies of individuals who participate in youth, secondary, collegiate and professional sports. Provides a foundation for professionals interested in social work practice in sporting environments and begins to prepare social workers to assist athletes at all levels and in various settings.

**SCWK 611T. Creative Techniques and Skills in Practice with Adolescent Girls (1-3).**

Introduces the techniques and practice of interpersonal skills with adolescent girls. Focuses on development of skills and knowledge to better work with this population, in a manner that acknowledges and addresses the risks and strengths of adolescent girls. Course is didactic as well as interactive and includes experiential learning.

**SCWK 611U. International Child Welfare (3).**

Focuses on human rights issues affecting children in the welfare system around the globe. Topics include issues of adoption, foster care, kinship care, placement permanency, child welfare workers burnout, organizational factors in effective child welfare globally and others. These issues are discussed from comparative historical, cultural, economic and societal perspectives. Students actively engage in creating solutions for domestic child welfare issues based on international best practices. The overarching goal is to develop problem-solving skills for responding to U.S.-based child welfare challenges by the integration of international best practices in this field and building students' skills in recognizing global diversity of childhood experiences. Employs high-impact educational practices including collaborative projects, experiential learning and exposure to global differences. *Course includes diversity content.*

**SCWK 700. Foundations of Generalist Practice I (3).**

Provides foundation content in the knowledge and skills for empowerment-based generalist social work practice with individuals, families, groups, organizations, and communities. Includes professional role development, communication and interviewing theory, skill development in social work assessment, intervention and evaluation methods. Prerequisite(s): degree admission to MSW program.

Corequisite(s): SCWK 720.

**SCWK 702. Foundations of Generalist Practice II (3).**

Provides continued social work practice foundation content emphasizing developing generalist knowledge and skill at the group, organizational, community and societal levels. Emphasizes material on group process, and organizational and community leadership in the development of a problem-solving model for work with systems of all sizes. Prerequisite(s): SCWK 700, degree admission to MSW program. Corequisite(s): SCWK 721.

**SCWK 710. Micro Human Behavior and the Social Environment (3).**

Provides theories and knowledge of human bio-psycho-social development and functioning of individuals and families, and of the transaction between individuals and families and their environment. Presents theoretical perspectives on development over the life span and family functioning. Explores areas of universality and differences across gender, race, ethnicity, class, physical and mental ability, and sexual orientation. Prerequisite(s): degree admission to MSW program. Corequisite(s): SCWK 717.

**SCWK 712. Macro Human Behavior and the Social Environment (3).**

Provides theories and content on organizational and community structure, dynamics and change, social movements, large groups and structural oppression, and provides a theory base for the contextualization of social work practice within diverse environments and macro systems. Emphasizes understanding the needs of minority communities and understanding change and empowerment strategies which further social justice in communities and organizations. Prerequisite(s): SCWK 710, degree admission to MSW program. Corequisite(s): SCWK 751.

**SCWK 717. Policy I: Social Welfare and Analysis (3).**

Surveys social welfare institutions, emphasizing the strengths and weaknesses of programs within the context of the social problems they address. The comparison of these structures and provisions enables the development and use of frameworks for analyzing social policies and evaluating programs in light of the mission of the social work profession, the principles of social and economic justice, and the historical, economic and political factors which impinge on policy. Content on the effects of policy and social work practice includes the uses of professional roles in shaping the processes of policy formulation in agency and governmental arenas. Prerequisite(s): degree admission to the MSW program. Corequisite(s): SCWK 710.

**SCWK 720. Field Practicum I (4).**

Placement in community social service agencies for supervised periods of observation and direct service assignments emphasizing development of basic practice knowledge and skills. Promotes an understanding of the social service agency and its role in the community service network. Corequisite(s): SCWK 700.

**SCWK 721. Field Practicum II (4).**

Requires placement in community social service agencies for supervised periods of observation and direct service assignments emphasizing development of basic practice knowledge and skills. Promotes an understanding of the social service agency and its role in the community service network. Corequisite(s): SCWK 702.

**SCWK 730. Graduate Topics in Social Work (1-3).**

Specialized instruction using a variable format in a social work relevant subject. Repeatable for credit.

**SCWK 730U. Explore Animal Assisted Therapy (1).**

An introduction to Animal Assisted Therapy: definition, criteria and comparison/contrast of the multiple ways that animals and humans function within the animal/human relationship and bond. This course explores the modalities in which both untrained volunteers and professional practitioners utilize various animals to assist in working with a variety of client services. The focus of this course is on AAT in social work services, but much of the material presented is applicable to other human service disciplines as well.

**SCWK 750. Social Work Workshops (2-5).**

Selected topics in practice, policy, research and human behavior in the social environment within a selected field of social welfare. Covers specific topics identified by the program in consultation with majors, groups of community practitioners and area service institutions. Repeatable for credit up to a total of 6 hours.

**SCWK 751. Fundamentals of Social Work Research (3).**

Introduces students to the components of quantitative and qualitative research methods and describes how research is designed to conduct studies which seek to improve social work practice. Introduces the basic concepts of the social work research process as well as the methods that are employed. Students develop a framework for critically evaluating (1) methods employed in current social work research, and (2) potential benefits of applying these research findings to social work practice. Prerequisite(s): degree admission to the MSW program. Corequisite(s): SCWK 712.

**SCWK 760. Advanced Generalist Practice Seminar I (1).**

Builds on the graduate social work student's knowledge, experience and skills by integrating social work theory, values, ethics, methodology and literature. It is based in the generalist perspective and prepares students for the advanced generalist practice curriculum. This course is a prerequisite to all 800-level MSW core courses and must be completed in the summer before beginning the advanced generalist 800-level courses. Prerequisite(s): degree admission to the MSW program.

**SCWK 799. Directed Study (1-3).**

Individual study with a focus developed in collaboration with a departmental faculty member. Allows students to pursue an area of special interest. Repeatable for credit up to 6 hours. Prerequisite(s): departmental consent.

**SCWK 800. Thesis (1-3).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor.

**SCWK 810. Cultural Competency for Advanced Generalist Practice (3).**

Examines the impact of culture, race and ethnicity on client/worker interactions. Presents practice theories and interventions for culturally competent advanced generalist practice with different populations. Emphasizes experiential learning of cultural competence skills to provide services cross-culturally. Prerequisite(s): SCWK 760 and degree admission to the MSW program.

**SCWK 811BA. Badge: Specialty Clinical Certification - Clinical Assessment (1).**

Intended for advanced practitioners who provide clinical services to clients with co-occurring behavioral health needs and intellectual/developmental disabilities. Includes professionals licensed by the Kansas Behavioral Sciences Regulatory Board and those interested in obtaining national certification through NADD, an association for

people with dual diagnosis. Covers the core competency of clinical assessment as defined by NADD benchmarks for clinical excellence in IDD-MI dual diagnosis best practice. Clinical assessment is an examination into a person's mental health conducted by a professional who is trained and credentialed within his/her own discipline with the purpose of arriving at a mental health diagnosis or arriving at a formulation of a person's problems. The expected outcome of a clinical assessment is to recommend relevant treatment, intervention and supports consistent with the findings of the examination. For graduate credit only. Graded Bg/NBg. *Course includes diversity content.*

**SCWK 811BB. Badge: Specialty Clinical Certification - Psychotherapy (1).**

Intended for advanced practitioners who provide clinical services to clients with co-occurring behavioral health needs and intellectual/developmental disabilities. Includes professionals licensed by the Kansas Behavioral Sciences Regulatory Board and those interested in obtaining national certification through NADD, an association for people with dual diagnosis. Students learn to employ a comprehensive assessment strategy that addresses the full array of bio-psycho-social factors that may be relevant to the individual's clinical presentation and learn strategies for planning psychotherapeutic interventions and adaptations that meet the specific needs of the individual being treated. For graduate credit only. Graded Bg/NBg.

**SCWK 811BC. Badge: Specialty Clinical Certification - Positive Behavior Supports an Effective Environments (1).**

Intended for advanced practitioners providing clinical services to clients with co-occurring behavioral health needs and intellectual/developmental disabilities. Includes professionals licensed by the Kansas Behavioral Sciences Regulatory Board and those interested in obtaining national certification through NADD, an association for people with dual diagnosis. Covers the core competency of clinical assessment as defined by NADD benchmarks for clinical excellence in IDD-MI dual diagnosis best practice. Clinical assessment is an examination into a person's mental health conducted by a professional trained and credentialed within his/her own discipline with the purpose of arriving at a mental health diagnosis or arriving at a formulation of a person's problems. The expected outcome of a clinical assessment is to recommend relevant treatment, intervention and supports consistent with the findings of the examination. For graduate credit only. Graded Bg/NBg. *Course includes diversity content.*

**SCWK 811BD. Badge: Specialty Clinical Certification - Assessment of Medical Issues (0.5).**

The course is intended for advanced practitioners who provide clinical services to clients with co-occurring behavioral health needs and intellectual/developmental disabilities. The content addresses the core competency of assessment of medical issues as defined by NADD benchmarks for clinical excellence in IDD-MI dual diagnosis best practice. Medical illness can have a profound effect on brain functioning. Being aware of these conditions can improve the quality of life for many individuals with IDD. It can also be helpful in minimizing psychiatric misdiagnosis and inappropriate pharmacotherapies. The student is not expected to be able to make medical diagnoses but to have an elevated index of suspicion for their presence. For graduate credit only. Graded Bg/NBg.

**SCWK 811BE. Badge: Specialty Clinical Certification - Psychopharmacology (0.5).**

The course is intended for advanced practitioners who provide clinical services to clients with co-occurring behavioral health needs and intellectual/developmental disabilities. The content addresses the core competency of psychopharmacology as defined by NADD benchmarks for clinical excellence in IDD-MI dual diagnosis best practice. In this context, psychopharmacology refers to the use of drugs that

affect the central nervous system in the treatment of both challenging behaviors and psychiatric disorders. Students are equipped to engage in multidisciplinary teams and effectively monitor psychopharmacology interventions prescribed to their clients. For graduate credit only. Graded Bg/NBg.

**SCWK 811BF. Badge: Specialty Clinical Certification - Preparing to Demonstrate Mastery (0.5).**

The course is intended for advanced practitioners who provide clinical services to clients with co-occurring behavioral health needs and intellectual/developmental disabilities. This course covers the requirements for certification by NADD and prepares students to demonstrate mastery of the benchmarks for clinical excellence in IDD-MI dual diagnosis best practice. The clinician seeking certification is required to demonstrate mastery of the following five competency areas: clinical assessment, psychotherapy, positive behavior supports and effective environments, assessment of medical issues, and psychopharmacology. Credentialing requires eligible professionals to submit a work sample and participate in an oral exam or interview. This course helps the student prepare to make the application to NADD for this nationally recognized certification. For graduate credit only. Graded Bg/NBg.

**SCWK 816. Advanced Generalist Practice With Individuals (3).**

Develops the advanced generalist practice competencies needed for intervention with individual clients. Evidence-based theories and practice intervention strategies are applied. Advanced generalist practice skills in work with clients from diverse backgrounds are developed, and critical thinking skills are enhanced in developing an advanced generalist practice perspective integrating individual clients with larger social systems. Prerequisite(s): SCWK 760, degree admission to the MSW program. Corequisite(s): SCWK 822, 851.

**SCWK 817. Policy II: Advocacy and Social Justice (3).**

Provides students with advanced generalist skills, knowledge and ethics for advanced policy practice roles within social agencies, communities and political arenas. Examines the history, strategies and approaches to advocacy and policy/program planning and development. Students demonstrate advanced skills in working with communities and policy processes on multiple levels. Prerequisite(s): SCWK 760, degree admission to the MSW program. Corequisite(s): SCWK 833.

**SCWK 821. Advanced Generalist Summer Practicum Seminar (1-3).**

Requires placement in a community social service agency for supervised periods applying direct and indirect practice. Provides students the opportunity to integrate and apply advanced generalist practice theory within their field experience. Students are required to demonstrate increased knowledge and skills in practice, research and evaluation across multi-level systems. Requires up to 100 hours of practicum service during the summer semester. Course counts as 1 credit hour toward required MSW program electives. Prerequisite(s): SCWK 760 and approval by practicum office.

**SCWK 822. Field Practicum III (4).**

Placement in community social service agencies for supervised periods applying direct and indirect practice. Provides students the opportunity to integrate and apply advanced generalist practice theory within their field experience. Students are required to demonstrate increased knowledge and skills in practice, research and evaluation across multi-level systems. Requires 350 hours of agency service. Prerequisite(s): SCWK 760, degree admission to the MSW program. Corequisite(s): SCWK 816, 851.

**SCWK 823. Field Practicum IV (4).**

Continuation of SCWK 822. Requires 350 hours of agency service. Prerequisite(s): SCWK 760, 822, degree admission to the MSW program. Corequisite(s): SCWK 860, 899.

**SCWK 832. Social Work Practice in the Schools (3).**

Conveys an understanding of systematic intervention in schools using various intervention modalities. Focuses on the roles of social workers in schools, including provision of direct service, consultation, advocacy, program development and evaluation, as well as liaison functions with families and community systems. Students integrate an understanding of child development, familial and school crises that affect child development and the importance of the social worker/parent relationship. For graduate students only.

**SCWK 833. Advanced Generalist Practice with Families and Groups (3).**

Develops the advanced generalist practice competencies needed for intervention with families and groups. Evidence-based theories and practice intervention strategies are applied. Advanced generalist practice skills in work with families and groups from diverse backgrounds are developed, and critical thinking skills are enhanced in developing an advanced generalist practice perspective integrating families and group client systems with larger social systems. Prerequisite(s): SCWK 760, degree admission to the MSW program. Corequisite(s): SCWK 817.

**SCWK 840. Advanced Graduate Topics in Social Work (1-3).**

Specialized instruction using a variable format in an advanced social work relevant subject. Repeatable for credit.

**SCWK 840C. Clinical Interventions with Children and Adolescents (3).**

Builds upon the graduate student's knowledge, skills and ethics of clinical intervention with a focus on developmental theories, diagnosis of disorders, risk assessment factors, and diversity in children and adolescents.

**SCWK 840M. Social Work Practice with Compassion and Mindfulness (3).**

Explores the use of mindfulness and compassion in social work practice settings. Students learn about the importance of using mindfulness and compassion for self-care as well as client care. Students explore mindfulness and compassion through the trinity of mind, body and spirit, and learn techniques and skills to incorporate into practice.

**SCWK 840N. Brief Solution-Based Treatment (1).**

Offers an overview of the techniques of Solution-Based Therapy. Explores the history and usefulness of this treatment modality. Students learn basic therapeutic interventions used in this area of practice. This two-day training provides a solid introduction to solution-focused treatment. Introduces solution-focused coaching techniques and also offers the student practice time using these new tools. Participants learn how to work effectively using this style of intervention and how to productively engage with externally motivated clients and families, work effectively with ambivalent clients, understand and use a system's perspective in order to support and enhance motivation for change with clients currently seeking a better existence.

**SCWK 840P. Social Work Practice using Biofeedback (3).**

Introduction to the use of biofeedback and neurofeedback. Covers the history of biofeedback, overview of learning theories, research methods, and stress and bio-psycho-social models of stress and illness. Covers the principles of self-regulation, mind-body interaction, the basics of instrumentation and treatment applications, and professional ethical conduct in the helping professions.

**SCWK 840R. Attachment and Trauma: The Effects on Individuals, Groups and Communities (3).**

Provides a thorough review of theories of attachment as well as the background research of the prominent minds behind them. The core elements of the three primary theories of attachment; secure, anxious and avoidant are more deeply explored. Additionally, the effects of trauma on attachment at the micro, mezzo and macro level are addressed, and possible interventions at each level explored.

**SCWK 851. Applied Social Work Research (3).**

Prepares students to be ethical practitioners who assess the benefits of social work interventions on an ongoing basis. Because of the importance of evaluation in social work, students develop the research skills needed to evaluate their own practice, conduct program evaluations, use the computer as a research tool, and interpret descriptive and inferential statistics. Prerequisite(s): SCWK 760, degree admission to the MSW program. Corequisite(s): SCWK 816, 822.

**SCWK 860. Advanced Generalist Practice Administrating Organizations and Communities (3).**

Develops the advanced generalist practice competencies needed for administrative and supervisory intervention with organizations and communities. Evidence-based theories and practice intervention strategies are applied. Provides advanced generalist practice skills in administrating, leading and managing organizations, and intervening with diverse communities. Prerequisite(s): SCWK 760, 816, degree admission to the MSW program. Corequisite(s): SCWK 823, 899.

**SCWK 870. Clinical Assessment for Advanced Generalist Practice (3).**

Uses a bio-psycho-social perspective to understand problematic patterns of functioning identified as diagnoses in the DSM 5. Students critically examine the DSM 5 as a basis for social work assessment and learn its use within an advanced generalist practice perspective. Prerequisite(s): program consent.

**SCWK 899. Advanced Generalist Practice Seminar II (1).**

Requires students to apply advanced generalist practice skills and knowledge to a final project. The project demonstrates mastery of the competencies required of an advanced generalist practitioner. Graduating students are required to develop and present their completed projects in a public forum. Prerequisite(s): SCWK 760, degree admission to the MSW program. Corequisite(s): SCWK 823, 860.

## SMGT - Sport Management

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**SMGT 511. Selling in the Sport Industry (3).**

Examines both the theory and the practical application of sales and promotions in the sports industry. Students learn a process for sales and use that process in a real-life sales exercise. Students are introduced to methods of sales management. The class conducts sales projects for local sports organizations for practical experience and application of theory.

**SMGT 520. Sport Tournament and Event Management (3).**

Examines the processes, methods and practices involved in sport event management, including sport tournaments, sports team events and individual sporting events. Students completing this class should feel prepared to initiate and execute a sport event on their own. Prerequisite(s): SMGT 112 or graduate standing.

**SMGT 525. Sport Facility Management (3).**

Focuses on various aspects of facility management, such as mission development, funding and budget, site selection/planning/design, floor

surfaces, risk management, equipment purchase and maintenance, and personnel management. Prerequisite(s): SMGT 112 or graduate standing.

**SMGT 540. Business Analytics in Sport (3).**

Integrates the knowledge base of sport and business as it applies in the practical setting. Prerequisite(s): 2.000 GPA, junior, senior or graduate standing.

**SMGT 545. Sport Governance and Policy (3).**

Discusses the fundamental aspects of management and administration within any sport-related organization. Students are exposed to key industry concepts such as strategic management, ethics and event planning activities, in addition to governance and policy related topics such as scholastic, intercollegiate and amateur sport.

**SMGT 552. Study Abroad in Sport and Entertainment (1-3).**

Introduces students to management and marketing principles in the sport and entertainment industry. Provides firsthand experiences in international sport and entertainment events and organizations through a study abroad opportunity. *Course includes diversity content.* Prerequisite(s): 18 years of age or older.

**SMGT 585. Critical Sport Studies (3).**

Provides students an opportunity to study the social, historical, cultural and economic contexts of sport, recreation and physical activity. Students engage with a variety of disciplines, concepts and ideas in order to critically examine the purpose, impact and evolution of sport, including identities and how sport can support or impact sociocultural change. *Course includes diversity content.*

**SMGT 590. Independent Study (1-3).**

Arranged individual independent study in specialized content areas under the supervision of a faculty member. Repeatable for credit. Prerequisite(s): departmental consent.

**SMGT 711. Structuring and Scheduling Sports Tournaments (3).**

The structural design, scheduling processes, and mathematics of sport tournaments, elimination, placement and round robin formats.

**SMGT 750D. Sociology of Coaching (3).**

The purpose of the course is to provide an exhaustive examination of the role, purpose, and impact of sport coaches on all levels of sport. Students will use sociological concepts to explain coaching dynamics within and outside the realm of sport.

**SMGT 750E. Marketing in Sport Industry (3).**

Cross-listed as SMGT 803. Focuses on the application of marketing principles in a sport-related setting. Addresses such content areas as corporate sponsorships, ticket sales, broadcast agreements, promotional events, and direct marketing in the sport entertainment, sport participation and sporting goods sectors of the industry.

**SMGT 750G. Public Relations in Sport Mgmt (3).**

A sport organization's success is largely dependent on the degree to which it can effectively communicate with key constituents. This class addresses topics pertaining to organizational communication, including public relations management, image, media relations and community relations.

**SMGT 750I. Sociocult Dimens of Sport Mgmt (3).**

A basic understanding of the developments, trends, and social processes explaining the popular sporting and physical activity experiences within the sport management industry.

**SMGT 750J. Technology in the Sports Industry (3).**

Students in this course will gain a greater appreciation for applications of current technology in the area of sport management including but not limited to: the fundamentals of computers and their use, the application of commercial software to the sport management setting, and ethical

issues sport managers face in using computers to conduct research and work with various social media platforms in sport settings.

**SMGT 750K. Building Sport Franchises (3).**

Introduces the sport management student to financial challenges, financial planning and related issues within professional sport organizations.

**SMGT 750L. Personnel Management in Sport (3).**

Initial introduction into the administration of sport in public schools, institutions of higher education, and commercial and professional sport organizations. Learn about the various components of sports administration by reading appropriate materials and entering into dialogue with practicing administrators.

**SMGT 750N. Social Psychological Foundations of Sport (3).**

Examines relevant psychological and sociological concepts that explain individual, community and cultural patterns of sport, exercise and physical activity participation.

**SMGT 750O. Sport and Entertainment Agencies (3).**

Examines the driving changes transforming the sport and entertainment industry, while focusing on what sport and entertainment enterprises look like now and how they are set to evolve in the future.

**SMGT 750P. Maximizing Mentoring Success (1).**

Designed to enhance participants' effectiveness in individual and group mentoring. Designed as a four-part series, each session introduces new content on relationship management, communication and cross-generational awareness to support participants' development as mentors. *Course includes diversity content.*

**SMGT 750Q. Sports, Stories and Films (3).**

The purpose of this class is to provide students not only the tools necessary to understand storytelling for their career and/or sport organization, but also to illustrate how sport films can be educational, motivational and awareness-raising resources. Students learn the basic facets of narrative-building and how to deconstruct, critique and deploy sport-based storytelling techniques to better connect with a variety of internal and external stakeholders.

**SMGT 781. Cooperative Education (1-3).**

Provides the graduate student with a field placement which integrates theory with a planned and supervised professional experience designed to complement and enhance the student's academic program. Individualized programs must be formulated in consultation with appropriate graduate faculty. The plan of study for a graduate degree-bound student must be filed before approval of enrollment for cooperative education graduate credit. Repeatable for credit. A maximum of 3 hours (for nonthesis option) or 6 hours (for thesis option) may count toward the graduate degree.

**SMGT 799. Mentoring and Networking in Sport (1).**

Gives students the necessary tools for impactful networking while also providing them a class-long mentor who is a successful industry professional. Prerequisite(s): admission to the MEd in sport management program.

**SMGT 800. Analytics and Decision Making In Sport (3).**

Highlights various data application in sport management as a professional tool to make informed decisions. Topics include understanding how to collect, interpret, represent and disseminate data in an organizational setting, and to better understand how data informs decision-making processes within sport.

**SMGT 801. Management In Sport (3).**

Initial introduction into the administration of sport in public schools, institutions of higher education, and commercial and professional sport organizations. Learn about the various components of sports

administration by reading appropriate materials and entering into dialogue with practicing administrators.

**SMGT 802. Ethics in Sport (3).**

Designed to give students an understanding of the various issues and concepts relating to ethical decision making in sport management settings. Fulfills the university's professional and scholarly integrity training requirement covering research misconduct, publication practices and responsible authorship, conflict of interest and commitment, ethical issues in data acquisition, management, sharing and ownership.

**SMGT 803. Sport Marketing (3).**

Cross-listed as SMGT 750E. Focuses on the application of marketing principles in a sport-related setting. Addresses such content areas as corporate sponsorships, ticket sales, broadcast agreements, promotional events, and direct marketing in the sport entertainment, sport participation and sporting goods sectors of the industry.

**SMGT 809. Sport Management Technology (2).**

Students gain a greater appreciation for applications of current technology in the area of sport management including, but not limited to: the fundamentals of computers and their use, the application of commercial software to the sport management setting, and ethical issues sport managers face in using computers to conduct research and work with various social media platforms in sport settings.

**SMGT 810. Sport Leadership and Socialization (3).**

Challenges students to develop a systemic approach to leadership and organize change in socially impactful sport organizations. Students identify ethically-based leadership styles, and learn how to leverage sport for the greater social good. Students also discover how to use sport to foster global diversity, prevent violence, and how to use sport to improve the local and global community. *Course includes diversity content.*

**SMGT 811. Sport In Society (3).**

Addresses the impact of sports on American culture, with focus on competition, economics, mythology, education, religion, ethics, professional sports, sports and minorities.

**SMGT 812. Ethical and Legal Issues in Sport (3).**

Provides students with the knowledge, understanding and application of how both ethical and legal issues influence the sport industry. In addition, content knowledge, application, case studies and class discussions focus on the identification and development of problem solving and decision making within the sport industry.

**SMGT 818. Psychology of Sport (3).**

An in-depth analysis of the psychology of motor learning and its implications for the teacher/coach.

**SMGT 822. Communication in Sport (3).**

A sport organization's success is largely dependent on the degree to which it can effectively communicate with key constituents. Addresses a variety of communication-related topics, including public relations management, image, media relations and community relations.

**SMGT 835. Legal Issues in the Profession I (3).**

Provides students with the knowledge, understanding and application of how the following legal issues influence the sport industry. Specific content includes: the legal system, legal research, statutory law, risk management, tort law (negligence and intentional torts), contracts, alternative dispute resolution, and employment-related issues within the sport industry. In addition to the above content knowledge and application, case studies and class discussion focus on the enhancement of problem-solving skills and prudent managerial decision making. Prerequisite(s): admission to the MEd in sport management program or instructor's consent.

**SMGT 847. Internship (1-12).**

Internship in selected areas of specialization in sport management. Prerequisite(s): departmental consent.

**SMGT 890. Special Topics (1-4).**

Directed reading and research under supervision of a graduate instructor. Prerequisite(s): departmental consent.

## SOC - Sociology

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**SOC 512. Measurement and Analysis (4).**

An applied study of the conceptual tools and methodological skills needed to conduct quantitative sociological research. Prerequisite(s): SOC 111, 312, 501. Corequisite(s): SOC 512L.

**SOC 512L. Measurement & Analysis Lab (0).**

The lab component of the SOC 512 course covers learning how to use the statistical software program SPSS and working on projects as part of the applied study of the conceptual tools and methodological skills needed to conduct quantitative sociological research.

**SOC 514. Sociology Capstone (3).**

Capstone experience designed to provide students an opportunity to integrate the knowledge, skills and insights they've developed as emerging Sociologists. While specific sociological topic areas may vary from semester to semester, the course exposes students to current research and perspectives while providing opportunities to engage in sociological practice by applying the tools of the discipline to a relevant social phenomenon and drawing links between the classroom and potential careers. For undergraduate credit only. Pre- or corequisite(s): SOC 111, 311, 312, 313.

**SOC 515. Family Diversity (3).**

*General education social and behavioral sciences course.* Analyzes the varieties of family forms in the U.S. with particular emphasis on the intersection of gender, race/ethnicity, social class and sexual orientation. Attention is given to the reciprocal effects of families and their social environments, and the impact of public policies on families. *Course includes diversity content.*

**SOC 516. Sociology of Gender (3).**

*General education social and behavioral sciences course.* Cross-listed as WOMS 516. Focuses on historic and current gender issues within a national and global context. Students explore both the individual and structural-level factors that influence the experience of "doing gender" within a variety of social institutions including potential avenues for change and collective action. *Course includes diversity content.*

**SOC 517. Intimate Relations (3).**

Examines the social dimensions of intimacy including an analysis of intimacy in different types of relationships, i.e., romantic, friendship, marriage. Reviews theory and research in the area with a special focus on the place of intimacy in social interaction. *Course includes diversity content.* Prerequisite(s): SOC 111.

**SOC 520. Family and Aging (3).**

Cross-listed as AGE 520. Analyzes the families and family systems of older people. Emphasizes demographic and historical changes, widowhood, caregiving and intergenerational relationships as these relate to the family life of older people. *Course includes diversity content.*

**SOC 528. Schools and Society (3).**

*General education social and behavioral sciences course.* Introduces sociological perspectives on the purpose of schools and their connection to the larger society. Uses key sociological concepts, theories and

methods to go beyond individual experiences and explore the educational system in the context of larger social forces. Examines the multiple functions and goals of education, stratification between schools and within schools, and inequalities of race, social class and gender. Other topics may include family and school relationships, bullying and youth culture, sexuality education, and educational policy issues. *Course includes diversity content.* Prerequisite(s): SOC 111.

**SOC 534. Urban Sociology (3).**

*General education social and behavioral sciences course.* Studies the process of urbanization and its influence on the development of cultural and social structures throughout the world. Also discusses social problems associated with urbanization. *Course includes diversity content.* Prerequisite(s): SOC 111.

**SOC 537. The Social Consequences of Disability (3).**

An eclectic survey of the social aspects of disability showing the impact of social values, institutions and policies upon adults with disabilities. Appropriate for both students of sociology and the service professions. *Course includes diversity content.* Prerequisite(s): SOC 111.

**SOC 538. Medical Sociology (3).**

*General education social and behavioral sciences course.* Analyzes social and cultural factors related to physical and mental illness. Also includes the dynamics of communication and role relationships among patients and medical personnel and social research and theory relevant to the health professions. *Course includes diversity content.*

**SOC 539. Juvenile Delinquency (3).**

*General education social and behavioral sciences course.* The factors related to juvenile delinquency and the measures of treatment and prevention. Prerequisite(s): SOC 111.

**SOC 540. Criminology (3).**

The extent and nature of criminal behavior and societal reactions to it. *Course includes diversity content.* Prerequisite(s): SOC 111.

**SOC 543. Aging and Public Policy (3).**

Cross-listed as AGE 543. Seminar-style course explores the impact of an aging population on social institutions, covers the history of American aging policies, the organization and financing of health care for the elderly, and discusses policy analysis as an evaluation tool for comparing public approaches to responding to the needs of an increasingly diverse aging population. Considers the process of policy formation, identifies key players and interest groups, and contrasts political ideologies regarding federal, state and private responsibilities for older people. Emphasizes Social Security, the Older Americans Act, Medicare and Medicaid as policy examples. Also looks at the potential contributions of the older population to society (volunteer services, provision of family care, etc.) as affecting and affected by policy. *Course includes diversity content.*

**SOC 559. Successful Aging: Theory, Research and Practice (3).**

Cross-listed as AGE 559, PSY 559, and SCWK 559. Reviews current interventions which promote successful aging. Theoretical bases of this work in biomedical and life span/developmental psychology are featured. Intended for students in the College of Health Professions, Liberal Arts and Sciences, and Engineering. *Course includes diversity content.* Prerequisite(s): AGE 100, or PSY 111, or SCWK 201, or SOC 111.

**SOC 559H. Successful Aging: Theory, Research and Practice Honors (3).**

Cross-listed as AGE 559, PSY 559, and SCWK 559. Reviews current interventions which promote successful aging. Theoretical bases of this work in biomedical and life span/developmental psychology are featured. Intended for students in the College of Health Professions, Liberal Arts and Sciences, and Engineering. *Course includes diversity*

*content.* Prerequisite: AGE 100, or PSY 111, or SCWK 201, or SOC 111.

**SOC 600. Selected Topics in Sociology (3).**

Study in a specialized area of sociology emphasizing student research projects. Includes deviant behavior, political sociology and the family. Repeatable for a total of 6 credit hours. Prerequisite(s): SOC 111, instructor's consent, and substantive area course.

**SOC 651. Directed Research (1-3).**

Gives the student further research skills in an area of special interest. All students are under the direction of a member of the graduate faculty who guides them in developing research skills. Prerequisite(s): SOC 512 or equivalent and instructor's consent.

**SOC 670. Independent Reading (1-3).**

For the advanced student capable of doing independent work in an area of special interest. Prerequisite(s): 15 hours of sociology and instructor's consent.

**SOC 711. Sociological Theory (3).**

Comprehensive survey of classical sociological theory emphasizing theories relevant to the development of sociology. Prerequisite(s): departmental consent.

**SOC 713. Statistics for Social and Behavioral Sciences (3).**

Applies descriptive and inferential statistics to sociological problems. Includes computer experience with statistical software. Prerequisite(s): departmental consent.

**SOC 750. Sociology Workshop (1-3).**

Provides specialized instruction using a variable format in a sociologically relevant subject.

**SOC 781. Cooperative Education (1-4).**

Provides practical experience, under academic supervision, that complements the student's academic program. Consultation with, and approval by, an appropriate faculty advisor are necessary. With advisor approval, up to 4 hours of cooperative education may count toward graduate degree requirements.

**SOC 781N. Sociological Practice Internship (1-3).**

Integrates academic theory with planned professional experience providing students with practical skills training under academic supervision to complement the student's academic program. Individualized programs must be formulated in consultation with, and approved by, appropriate faculty sponsors as well as the Career Development Center. Repeatable for credit.

**SOC 801. Application of Advanced Statistical Techniques (3).**

Seminar demonstrates the application of statistical packages via personal computers to analyze data and interpret the output. Examines statistical tests from univariate to multivariate. Usually offered fall semester only. Prerequisite(s): SOC 501 or departmental consent.

**SOC 811. Advanced Research: Quantitative Methods (3).**

Seminar course designed to provide graduate students with the conceptual tools and methodological skills needed to conduct quantitative sociological research. Students are introduced to sampling, measurement and data management issues. In addition, students gain experience with statistical software packages using large-scale data sets. Prerequisite(s): departmental consent.

**SOC 812. Advanced Research: Qualitative Methods (3).**

Graduate students deepen their understanding of the research process as they are introduced to qualitative methods, methodology and analysis. Students learn to address methodological issues by developing a pilot project requiring them to apply their understanding of qualitative methods, sampling and coding. Through this process, students are prepared to compare the strengths and limitations of quantitative,

qualitative and mixed method approaches while becoming critical consumers of qualitative research.

**SOC 813. Advanced Sociological Perspectives of Aging (3).** Cross-listed as AGE 813. Overview of the significant sociological perspectives, social issues and social science research pertaining to the phenomenon of aging in society. Examines the major theories of social aging, analyzes the changing demographic trends and the political economy issues facing aging societies; describes how the broader societal context affects the nature of family relationships, community involvement, and the experiences of retirement and widowhood among older adults. Examines the current issues in health and social service delivery for care of older adults. Examines a substantive field which includes major social policy as well as personal significance in contemporary life. *Course includes diversity content.*

**SOC 815. Seminar On The Family (3).** Review of recent research on the family and the theoretical implications thereof. Prerequisite(s): SOC 515 or departmental consent.

**SOC 845. Seminar in Sociological Theory (3).** A comprehensive survey of contemporary sociological theories and their classical roots. Emphasis on theories applicable to students' thesis and nonthesis projects. Generally offered spring semester only. Prerequisite(s): departmental consent.

**SOC 847. Seminar in Recent Developments in Sociology (3).** Major issues, new theories, new techniques of research, new areas of research, and new applications. Repeatable for a total of 6 credit hours. Prerequisite(s): 15 hours of sociology and departmental consent.

**SOC 847C. Seminar in the Sociology of Gender (3).** Explores emerging and ongoing issues, theories, research and practice related to the sociology of gender.

**SOC 847E. Seminar in Sociological Media Studies (3).** Focuses on the investigation of Media from a sociological perspective including emerging and ongoing issues, theories, research and practice.

**SOC 847F. Advanced Data Management (3).** Review of database designs, modeling and data preparation for analysis and reporting including programming, data management techniques and data imputation. Course is an applied research experience utilizing institutional data and common analytical software.

**SOC 847G. Statistical Modeling (3).** Applied course using institutional data to perform statistical modeling for defined student outcomes. Familiarity with regression analysis, data management, SPSS syntax and SQL is required.

**SOC 847I. Social Policy and Aging (3).** Analyzes and evaluates policies and programs related to aging and the life course. Emphasizes the importance of social values and historical context for understanding current policies, programs and practices.

**SOC 851. Directed Project (1-3).** A project conducted under the supervision of an academic adviser for the nonthesis option. Requires the completion of a written report and an oral presentation of the research to the faculty. Prerequisite(s): consent of academic adviser.

**SOC 860. Proseminar - Sociology (3).** Examines the academic roles of sociologists, the fields of study and types of research. Usually offered fall semester only. Fulfills the university's professional and scholarly integrity training requirement covering research misconduct, publication practices and responsible authorship, conflict of interest and commitment, ethical issues in data acquisition, management, sharing and ownership. Prerequisite(s): departmental consent.

**SOC 870. Independent Reading (1-3).** Advanced systematic reading in a topical area under the tutorship of a member of the graduate faculty. Repeatable for a total of 6 credit hours. Prerequisite(s): departmental consent.

**SOC 875. Thesis (1-3).** Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for credit.

**SOC 876. Thesis (1-3).** Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for credit.

## SPAN - Spanish

**Upper-division courses are given on a rotating basis. SPAN 400 is a prerequisite for all upper-division literature and civilization courses, unless otherwise indicated.**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**SPAN 505. Spanish Phonetics (3).** Cross-listed as LING 505C. Includes articulatory phonetics, phonemics, sound/symbol correspondences, dialectal and stylistic variations. Required for future Spanish teachers. Prerequisite(s): any 200-level SPAN course or departmental consent.

**SPAN 515A. Major Topics in Spanish (1-4).** Repeatable for credit. Prerequisite(s): departmental consent.

**SPAN 520. Hispanic Film: Cinema in the Spanish Speaking World (3).** Focuses on various general topics affecting the Spanish speaking societies. The film productions from Spain and Latin America in the original Spanish language studied in class serve as cultural instruments to analyze some endemic social problems affecting the Hispanic societies including immigration, repressive governments, globalization, gender inequality among others. Repeatable for credit. Prerequisite(s): SPAN 400.

**SPAN 525. Advanced Spanish Conversation (3).** Provides students the opportunity to further develop aural and oral proficiency through listening, vocabulary building, culturally appropriate communication strategies, skits, presentations and pronunciation practice in an immersion environment. Prerequisite(s): SPAN 325 or departmental consent.

**SPAN 526. Advanced Spanish Grammar and Composition (3).** Students develop the ability to utilize advanced grammatical structures, create advanced-level written texts and communicate successfully in written Spanish. Class activities include grammatical analysis and practice, writing assignments of varying length, and peer review. Prerequisite(s): SPAN 220 or SPAN 321 or departmental consent.

**SPAN 546. Spanish Language Learning (3).** Cross-listed as LING 546. Introduces language learning from an applied linguistics perspective: the processes of first and second language acquisition, elements of Spanish grammar that are often difficult for English speakers, and social aspects of language learning. Appropriate for advanced undergraduate students and graduate students. Taught in Spanish. *Course includes diversity content.* Prerequisite(s): SPAN 526 or departmental consent.

**SPAN 547. Spanish in the U.S. (3).** Cross-listed as LING 547. Explores the structural and social aspects of Spanish in the United States. Examines the history and social context

of the use of Spanish in the U.S. as well as dialectical and contact phenomena in U.S. Spanish. Also covers Spanish in education, in the media and in other aspects of public life in the U.S. Appropriate for advanced undergraduate students and graduate students. Taught in Spanish. *Course includes diversity content.* Prerequisite(s): SPAN 526 or departmental consent.

**SPAN 552. Business Spanish (3).**

Provides the opportunity to learn and practice commercial correspondence, business vocabulary, translation and interpretation of business texts. Prerequisite(s): SPAN 526.

**SPAN 557. Principles of Translation and Interpreting (3).**

For students wishing to learn skills and techniques of translation and interpreting in addition to developing vocabulary in different domains of professional Spanish. Course combines readings, discussions and applied practice/hands-on activities. Pre- or corequisite(s): SPAN 526 or departmental consent.

**SPAN 558. Advanced Translation and Interpreting (3).**

Further study of translation and interpreting of different types of texts for the professional world. Prerequisite(s): SPAN 526, 557; or departmental consent.

**SPAN 559. Spanish for the Health Professions (3).**

Gives students a fundamental background in the Spanish that is spoken in health care settings and explores health disparities affecting Latinos in the U.S. Through conversation practice, simulated situations, readings, vocabulary exercises, projects, oral interviews, etc., students learn to communicate in Spanish in a wide range of situations pertinent to health-related scenarios. While the course does review some grammatical concepts in Spanish, all grammar practice is studied in the context of the health care setting. Prerequisite(s): SPAN 526.

**SPAN 561. Practicum in Spanish for the Professions (3).**

Service-learning course in which advanced students in the Spanish for the Professions program are matched with a community partner organization that has identified a need for professional-level Spanish language work. Students spend 45 or more hours using their Spanish language skills to meet the identified community need. Students develop a service-learning plan with a site preceptor at the community organization and participate in activities designed to prepare them to meet the needs of their site, meet regularly with the supervising Spanish professor, reflect critically on the community need they are addressing and on their own role in addressing this need, and reflect on their experiences with the partner organization and community members. *Course includes diversity content.* Prerequisite(s): SPAN 557, SPAN 558 and SPAN 559 or instructor's consent.

**SPAN 562. Practicum in Spanish Teaching (3).**

Service-learning course in which advanced students in Spanish are matched with an educational institution that has identified a need for assistance in a Spanish bilingual or heritage language educational context. Students spend 45 or more hours using their Spanish language skills to meet the identified educational need. They develop a service-learning plan with a site preceptor at the educational institution and participate in activities designed to prepare them to meet the needs of their site, meet regularly with the supervising Spanish professor, reflect critically on the educational and community needs they are addressing and on their own role in addressing this need, and reflect on their experiences with the partner organization and community members. Students who are already full-time teachers can complete this practicum in their own classroom. *Course includes diversity content.* Prerequisite(s): MCLL 454F and SPAN 546 or SPAN 547.

**SPAN 610. Survey of Spanish Medieval and Premodern Literature (3).**

Spanish literature from the beginning to 1700. Main currents of medieval and early Spanish literature. Topics include major authors, works and literary movements of the periods. Consists of analysis of short stories, poems, plays and other genres. Prerequisite(s): SPAN 400 or departmental consent.

**SPAN 611. Survey of Spanish Modern Literature (3).**

Main currents of Spanish literature from 1700 to the present. Prerequisite(s): SPAN 400 or departmental consent.

**SPAN 620. Survey of Latin-American Literature (3).**

Survey of Latin-American literature from pre-Columbian times through the building of new nations, and to the rise of Modernism at the turn of the 20th century. Prerequisite(s): SPAN 400 or departmental consent.

**SPAN 621. Survey of Contemporary Latin-American Literature (3).**

Provides students with a chronological and thematic approach to the main currents of Latin-American literature in the 20th and 21st centuries. Provides a critical presentation of major realist, naturalist, avant-garde, boom and postboom authors. Prerequisite(s): SPAN 400 or departmental consent.

**SPAN 622. Special Studies in Spanish (1-4).**

Topic for study chosen with aid of instructor. Repeatable for credit. Prerequisite(s): instructor's consent.

**SPAN 623. Seminar In Spanish (2-3).**

Seminar in Spanish literature, language or civilization. Repeatable for credit. Prerequisite(s): SPAN 300.

**SPAN 623B. Seminar in Spanish and Latin-American Literature (1-5).**

Studies a selection of Latin-American cultural productions (literature and film) to answer two questions: How do criticism, fatality and heroism interrelate with Latin American culture? What can this threefold relationship tell us about the cultural development of Latin America? Latin-American cultural productions are centered in representing a dichotomy; on the one hand, romantic and erotic instincts related to sexual appetites and, on the other, thematic digressional, and chaotic energies — pathological desire — that constantly challenge the utopic integration of Latin-American nations.

**SPAN 623C. Seminar in Spanish-American Culture (1-5).**

Special studies in Spanish and Latin-American culture and civilization. For graduate/undergraduate credit. Given on a rotating basis. Repeatable for credit. Prerequisite(s): departmental consent.

**SPAN 624. Seminar in Latin-American Literature or Culture (3).**

May focus on a literary genre, historic or artistic period, main historic figure or author, region or topic, including transnational or transatlantic phenomena. Repeatable for credit. Prerequisite(s): SPAN 400 or departmental consent.

**SPAN 625. Contemporary Latin-American Novel (3).**

Prerequisite(s): SPAN 300 or departmental consent.

**SPAN 626. Spanish Civilization (3).**

Intensive study of Spanish culture, including historical and geographical factors in its development and its contributions to world civilization. Prerequisite(s): SPAN 220 or SPAN 321 and SPAN 325, or departmental consent.

**SPAN 627. Latin-American Civilization (3).**

Intensive study of Latin-American culture, including the historical and geographical factors of its development and its contributions to world civilization. Prerequisite(s): SPAN 220 or SPAN 321 and SPAN 325, or departmental consent.

**SPAN 631. Seminar in Latin-American Literature: Short Story (3).**

Study of the main writers in contemporary Latin-American literature. Prerequisite(s): SPAN 300 or departmental consent.

**SPAN 632. Hispanic Cooking Communities (3).**

Analyzes food and food representation as potential national symbols and examines their cultural meanings. Examples of the importance of Hispanic and Latino foods and culinary traditions through the years with particular attention to the diasporic communities and the impact of immigrant food are studied. *Course includes diversity content.* Prerequisite(s): SPAN 220/SPAN 221 and SPAN 325 or departmental consent.

**SPAN 633. Latin@ Studies (3).**

Introduces students to the range of issues that form the foundation of Latin@ studies. Students analyze the histories of the diverse Latin@ subgroups and acquire a multidisciplinary and panoramic perspective on the Latin@ collective and individual experience in the U.S. Special consideration is paid to the experiences of Latin@s in the Midwest and the representation of Latin@s in media. Course is taught in Spanish and includes readings in both Spanish and English. *Course includes diversity content.* Prerequisite(s): SPAN 220, 221 and 325 or departmental consent.

**SPAN 641. Seminar in Hispanic Applied Linguistics (3).**

Topics include: (1) learning and teaching Spanish, (2) Spanish in the professions, (3) discourse and intercultural communication, (4) social and political contexts. *Course includes diversity content.* Prerequisite(s): MCLL 351 or instructor's consent.

**SPAN 750. Workshop in Spanish (2-4).**

Repeatable for credit.

**SPAN 750C. Contextualized Language Instruction (2).**

Cross-listed as FREN 750C. Workshop on foreign language pedagogy. Required for GTAs in Spanish; open to advanced undergraduate French, Latin, or Spanish teaching majors. Prerequisite(s): enrolled in the MCLL Teaching Major, acceptance into the MA program in Spanish or French, or departmental consent.

**SPAN 805. Directed Readings Spanish (1-4).**

Readings vary according to the student's preparation. Includes preparation of reports, literary critiques and special projects in linguistics.

**SPAN 827. Latin American Civilization and Culture (3).**

Introduction to historical and cultural development in Latin America, exploring the legacy of the Spanish encounter/conquest. Emphasizes Spanish colonization. Prerequisite(s): graduate standing.

**SPAN 831. Seminar in Spanish Literature (3).**

(a) Middle Ages, (b) Renaissance, (c) Golden Age theater, (d) Cervantes, (e) modern novel, (f) Generation of '98, (i) Romanticism, (j) 20th century poetry, (k) criticism, (l) literature, (m) 20th century theatre, (n) contemporary Spanish novel, (o) picaresque novel, and (p) Spanish short story.

**SPAN 831F. Seminar in Spanish Literature: Generation of '98 (3).**

Generation of '98.

**SPAN 831P. Seminar in Spanish Literature: Spanish Short Story (3).**

Spanish short story.

**SPAN 832B. Seminar in Latin-American Literature: Contemporary Novel (2-3).**

Contemporary novel.

**SPAN 832C. Seminar in Latin-American Literature: Short Story (1-3).**

Short story.

**SPAN 832E. Seminar in Latin-American Literature: Modernism (3).**

Modernism.

**SPAN 832K. Seminar in Latin-American Literature: Latin-American Literature (2-3).**

Latin-American literature.

**SPAN 833. Survey of Spanish Literature I (to 1700) (3).**

Survey of medieval and early modern Spanish literature. Topics include major authors, works and literary movements of the periods. Consists of analysis of short stories, poems, plays and other genres.

**SPAN 834. Survey of Spanish Literature II (3).**

Overview of modern Spanish literary history. Topics covered include major authors, works and literary movements of modern Spanish literature (1700 to the present). The course consists of critical analysis of short stories, poems, plays, essays and excerpts from novels. Prerequisite(s): graduate standing.

**SPAN 835. Survey of Latin-American Literature (15th-19th Centuries) (3).**

Survey of Latin-American literature from its indigenous origins, through the colonial period, to the end of the independence campaigns. Consists of the close analysis of chronicles, short stories, poetry and other texts. Emphasis is placed on the relationship between ideology, nation building and literature. Prerequisite(s): graduate standing.

**SPAN 836. Survey of Latin-American Literature (20th and 21st Centuries) (3).**

In-depth overview of the cultural and commercial processes which gave way to the internationalization of Latin-American literature in the 20th century. Emphasis on how Latin-American literature became an object of interest in the U.S. and Europe in the 1960s and 1970s. It also examines the space some Spanish-American authors occupy currently in the world literary market. Prerequisite(s): graduate standing.

**SPAN 851. Advanced Topics in Spanish Culture and Civilization (3).**

Covers major events and sociopolitical movements in Spain from prehistoric times to present-day Spain. Through history, students examine the different cultures within Spain (Castilian, Catalan, Basque and Galician), focusing on language, nationality and political implications. Students explore major artists in all media including visual arts, music and literature, while also considering folkloric customs and traditions of the various regions (i.e. Culture and culture).

**STAT - Statistics**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**STAT 570. Special Topics in Statistics (3).**

Covers topics of interest not otherwise available. Prerequisite(s): departmental consent.

**STAT 571. Statistical Methods I (3).**

*General education math and natural sciences course.* Includes probability models, points and interval estimates, statistical tests of hypotheses, correlation and regression analysis, introduction to nonparametric statistical techniques, least squares, analysis of variance, and topics in design of experiments. Prerequisite(s): MATH 243 with a grade point of 2.000 or better, or departmental consent.

**STAT 572. Statistical Methods II (3).**

*General education math and natural sciences course.* Includes probability models, points and interval estimates, statistical tests of hypotheses, correlation and regression analysis, introduction to nonparametric statistical techniques, least squares, analysis of variance, and topics in design of experiments. Prerequisite(s): MATH 243 with a grade point of 2.000 or better, or departmental consent.

**STAT 574. Elementary Survey Sampling (3).**

Reviews basic statistical concepts. Covers simple, random, stratified, cluster and systematic sampling, along with a selection of sample size, ratio, estimation and costs. Applications studied include problems from social and natural sciences, business and other disciplines. Prerequisite(s): any elementary course in statistics, such as STAT 370, SOC 501 or PSY 301 with a grade point of 2.000 or better.

**STAT 576. Applied Nonparametric Statistical Methods (3).**

*General education math and natural sciences course.* Studies assumptions and needs for nonparametric tests, rank tests, and other nonparametric inferential techniques. Applications involve problems from the social and natural sciences, business and other disciplines. Prerequisite(s): any elementary statistics course such as STAT 370, SOC 501 or PSY 301 with a grade point of 2.000 or better.

**STAT 701. Matrix Theory (3).**

Studies matrix theory as a tool for studying linear models, analysis of variance, regression analysis, time series, and multivariate analysis. Topics include Eigenvalues and Eigenvectors, matrix factorization and matrix norms, generalized inverses, partitioned matrices, Kronecker product, vec operator, and matrix derivatives, with applications to statistics in each topic and special emphasis on quadratic forms in normal variates. Although some background in statistics is desirable, it is not necessary. Prerequisite(s): MATH 511 with a grade point of 2.000 or better.

**STAT 761. Probability (3).**

A study of axioms of probability, discrete and continuous random variables, expectation, examples of distribution functions, moment generating functions, and sequences of random variables. Prerequisite(s): MATH 344 with a grade point of 2.000 or better.

**STAT 762. Applied Stochastic Processes (3).**

Studies random variables, expectation, limit theorems, Markov chains, and stochastic processes. Prerequisite(s): STAT 761 or 771 with a grade point of 2.000 or better or departmental consent.

**STAT 763. Applied Regression Analysis (3).**

Studies linear, polynomial and multiple regression. Includes applications to business and economics, behavioral and biological sciences, and engineering. Uses computer packages for doing problems. Prerequisite(s): STAT 571, MATH 344 and 511 with a grade point of 2.000 or better in each, or departmental consent.

**STAT 764. Analysis of Variance (3).**

An introduction to experimental design and analysis of data under linear statistical models. Studies single-factor designs, factorial experiments with more than one factor, analysis of covariance, randomized block designs, nested designs, and Latin square designs. Uses computer packages for doing problems. Prerequisite(s): STAT 571, MATH 344 and 511 with a grade point of 2.000 or better in each, or departmental consent.

**STAT 771. Theory of Statistics I (3).**

An examination of stochastic dependence distributions of functions of random variables limiting distributions, order statistics, theory of statistical inference, non-parametric tests, and analysis of variance and covariance. Prerequisite(s): MATH 545 or 547 with a grade point of 2.000 or better, or departmental consent.

**STAT 772. Theory of Statistics II (3).**

An examination of stochastic dependence distributions of functions of random variables limiting distributions, order statistics, theory of statistical inference, non-parametric tests, and analysis of variance and covariance. Prerequisite(s): MATH 545 or 547 with a grade point of 2.000 or better, or departmental consent.

**STAT 774. Statistical Computing I (3).**

Trains students to use modern statistical software for statistical modeling and writing of technical reports. Examines many of the advanced features of most commercial statistical packages. Students perform complete statistical analyses of real data sets. Prerequisite(s): STAT 763 and 764, or departmental consent.

**STAT 775. Applied Statistical Methods I (3).**

Covers selected topics from time series analysis including basic characteristics of time series, autocorrelation, stationarity, spectral analysis, linear filtering, ARIMA models, Box-Jenkins forecasting and model identification, classification, and pattern recognition. Prerequisite(s): STAT 763 with a grade point of 2.000 or better, or departmental consent.

**STAT 776. Applied Statistical Methods II (3).**

Covers selected topics from multivariate analysis including statistical theory associated with the multivariate normal, Wishart and other related distributions, partial and multiple correlation, principal component analysis, factor analysis, classification and discriminant analysis, cluster analysis, James-Stein estimates, multivariate probability inequalities, majorization and Schur functions. Prerequisite(s): STAT 764 with a grade point of 2.000 or better, or departmental consent.

**STAT 861. Theory of Probability I (3).**

The axiomatic foundations of probability theory emphasize the coverage of probability measures, distribution functions, characteristic functions, random variables, modes of convergence, the law of large numbers and central limit theorem, and conditioning and the Markov property. Prerequisite(s): MATH 743, STAT 771.

**STAT 862. Theory of Probability II (3).**

The axiomatic foundations of probability theory emphasize the coverage of probability measures, distribution functions, characteristic functions, random variables, modes of convergence, the law of large numbers and central limit theorem, and conditioning and the Markov property. Prerequisite(s): MATH 743, STAT 771.

**STAT 870. Theory of Statistical Inference I (3).**

Covers asymptotic theory of maximum likelihood estimation, sufficiency and completeness, unbiased estimation, elements of decision theory and the Neyman-Pearson theory of testing hypotheses. Prerequisite(s): MATH 743, STAT 771.

**STAT 871. Theory of Statistical Inference II (3).**

Covers asymptotic theory of maximum likelihood estimation, sufficiency and completeness, unbiased estimation, elements of decision theory and the Neyman-Pearson theory of testing hypotheses. Prerequisite(s): MATH 743, STAT 771.

**STAT 872. Theory of Linear Models I (3).**

An introduction to the theory of linear models and analysis of variance. Includes multivariate normal distribution, distributions of quadratic forms, general linear models, general linear hypothesis, confidence regions, prediction and tolerance intervals, design models (1-factor and 2-factor), analysis of covariance and components-of-variance models. Prerequisite(s): MATH 511, STAT 772.

**STAT 873. Theory of Linear Models II (3).**

An introduction to the theory of linear models and analysis of variance. Includes multivariate normal distribution, distributions of quadratic

forms, general linear models, general linear hypothesis, confidence regions, prediction and tolerance intervals, design models (1-factor and 2-factor), analysis of covariance and components-of-variance models. Prerequisite(s): MATH 511, STAT 772.

**STAT 875. Design of Experiments (3).**

A study of basic concepts of experimental design which include completely randomized design, randomized block design, randomization theory, estimation and tests, Latin square design, factorial experiments, confounding, split-plot designs, incomplete block designs, and intra- and interblock information. Prerequisite(s): STAT 572 or 772.

**STAT 876. Nonparametric Methods (3).**

An introduction to the theory of nonparametric statistics. Includes order statistics, tests based on runs, tests of goodness of fit, rank-order statistics; one-, two- and k-sample problems; linear rank statistics, measure of association for bivariate samples, and asymptotic efficiency. Prerequisite(s): STAT 772.

**STAT 877. Multivariate Statistical Methods (3).**

Elementary theory and techniques of analyzing multidimensional data; covers Hotelling's T<sup>2</sup>, multivariate analysis of variance, principal components analysis, linear discrimination analysis, canonical correlation analysis, and analysis of categorical data. Prerequisite(s): MATH 511, STAT 772.

**STAT 878. Special Topics (2-3).**

Repeatable for credit with departmental consent. Prerequisite(s): departmental consent.

**STAT 879. Individual Readings (1-5).**

Repeatable for a total of 6 credit hours with departmental consent. Prerequisite(s): departmental consent.

**STAT 884. Statistical Computing II (3).**

Teaches special graphics and numerical methods needed in the analysis of statistical data. Includes advanced simulation techniques, numerical methods for linear and nonlinear problems, analysis of missing data, smoothing and density estimation, projection-pursuit methods, and graphic techniques. Prerequisite(s): MATH 751 and STAT 772 with C or better or departmental consent.

**STAT 971. Selected Advanced Topics in Probability and Statistics (3).**

Topics of current research interest in probability and statistics. Repeatable for credit with departmental consent. Prerequisite(s): instructor's consent.

**STAT 972. Selected Advanced Topics in Probability and Statistics (3).**

Topics of current research interest in probability and statistics. Repeatable for credit with departmental consent. Prerequisite(s): instructor's consent.

**STAT 978. Advanced Independent Study in Probability and Statistics (1-3).**

Arranged individual directed study in an area of probability or statistics. Repeatable for a total of 6 credit hours. Prerequisite(s): must have passed the PhD qualifying exam and instructor's consent.

**STAT 986. PhD Dissertation (1-9).**

Student-driven research experience to address a specific research question. Potential topics should be formulated by the student and discussed with their advisor. Repeatable for a total of 24 credit hours. Prerequisite(s): must have passed the PhD preliminary exam.

## THEA - Theatre

**While a formal major in theatre at the graduate level is not offered, the following courses are available.**

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**THEA 510. Design Project (1).**

Advanced work in the problems of stage lighting design, costume design or scenic design. With the permission and supervision of the appropriate faculty member, the student designs for specific productions for either Main Stage or Experimental Theatre. Repeatable twice for credit if taken in different design areas. Prerequisite(s): instructor's consent.

**THEA 516. Scriptwriting I (3).**

*General education fine arts course*. Cross-listed as ENGL 517. Writing scripts for performance. Emphasizes both verbal and visual aspects of scriptwriting. If possible, the scripts are given in-class readings by actors. Prerequisite(s): instructor's consent.

**THEA 517. Scriptwriting II (3).**

*General education fine arts course*. Cross-listed as ENGL 518. Writing scripts for performance in theatre, film, television and the Internet. Emphasizes both verbal and visual aspects of scriptwriting. If possible, the scripts are given in-class readings by actors. Prerequisite(s): instructor's consent.

**THEA 530. Musical Theatre Scene Study (2).**

An interdisciplinary practicum course with opportunities for student performers to refine interdisciplinary techniques by performing scenes from a variety of musical theatre genres including operetta, book musicals and rock musicals. Advanced students may explore opportunities to gain experience in directing and choreographing under faculty guidance and supervision. Prerequisite(s): junior or senior musical theatre, dance or voice majors only; and/or permission of the instructors.

**THEA 544. Stagecraft II: Applied Materials and Processes (3).**

Advanced stagecraft class. Explores advanced construction techniques for the fabrication of stage scenery and stage properties through applied study in materials and processes. Students complete a research project and presentation/demonstration of research findings. Independent projects relating to materials and techniques studied are pursued in arranged labs. Includes a minimum of 45 hours of applied processes and materials laboratory time. For undergraduate credit only. Prerequisite(s): THEA 244.

**THEA 546. Scene Painting (3).**

Presented with a lecture demonstration-studio arrangement. Explores various theatre painting materials and techniques enabling the student to develop skill as a scenic artist. Prerequisite(s): THEA 244.

**THEA 555. Capstone Project (1).**

Interdisciplinary course to showcase the talents of graduating seniors to professional producers, agents and casting directors. Students develop and produce a variety show demonstrating their talents in singing, dancing, acting, directing and choreography. For majors only. Undergraduate credit only. Prerequisite(s): instructor's consent.

**THEA 559. Directing II (3).**

Lab. arr. Staging and rehearsal techniques emphasizing the problems of the period and stylized play. Prerequisite(s): THEA 359 or departmental consent and junior standing.

**THEA 575. Capstone Project (1).**

Independent research or practical and creative final project for BFA in Performing Arts: Theatre (Performance and Design & Technical

Theatre) and BA in Performing Arts: Theatre. Encompasses all areas of study in theatre as well as subjects in the emphasis or designated plan of study and minor. The project results in a work that is presented for evaluation to a panel of faculty or to faculty and an invited audience. The form of the project and manner of presentation is determined in consultation with student's project advisor. For undergraduate majors only. Prerequisite(s): ENGL 102, MATH 111 or 131; senior standing and departmental consent.

**THEA 590. Theatre: Special Topics (1-3).**

Designed to expand and strengthen the experience of the student academically and professionally. Study of developments in theatre that go beyond, or are related to, courses already offered gives students a much richer preparation for their field of study. Topics include new technology, new materials, contemporary explorations in performance, and in-depth study of production methods.

**THEA 610. Directing the Musical (3).**

An interdisciplinary course using interdepartmental expertise (theatre, dance, music) to teach the student how to produce a musical. Prerequisite(s): instructor's consent.

**THEA 622. Academic Theatre Practicum (2).**

The investigation and exploration of the theatrical act in the classroom situation within the university community. Reinforces researching, writing, directing and performing skills. Enrolled students, functioning as a company, produce and perform for various disciplines on campus. Repeatable once for credit.

**THEA 623. Theatre History I (3).**

The history of theatrical activity as a social institution and an art form from its beginnings to the 17th century. Includes representative plays, methods of staging and theatrical architecture of various periods. Prerequisite(s): THEA 228.

**THEA 624. Theatre History II (3).**

*General education fine arts course.* History of theatrical activity as a social institution and an art form from the 17th century to the present. Includes representative plays, methods of staging and theatrical architecture of various periods.

**THEA 630. Auditions Class-Musical Theatre (3).**

Practicum course develops techniques and audition repertory singers need to gain professional employment and/or successfully compete for placement in advanced training programs. Also covers the business skills necessary for a professional career, and brings students into contact with professional guest artists who can provide additional insights and contacts. Prerequisite(s): instructor's consent.

**THEA 643. Styles In Acting (3).**

Training in, and development of, the special techniques required for period or stylized plays with special emphasis on Greek, Shakespearian and Restoration styles. Prerequisite(s): THEA 243, 342, junior standing.

**THEA 647. Scene Design II (3).**

Continuation of THEA 344 with more advanced work in designing settings for the stage and including studies in scenographic techniques and exercises in model building. Students design settings for a production having a single set, a production requiring a simultaneous setting and a production using multiple settings. Requires no laboratory work in theatre production. Prerequisite(s): THEA 244, 344.

**THEA 649. Stage Lighting II and Theatre Sound (3).**

Continues the study and application of the theories and techniques of THEA 345, emphasizing advanced concepts of design, and provides an introduction to theatre sound production. Prerequisite(s): THEA 345.

**THEA 651. Scene Study (3).**

The synthesis of all previous acting courses. Studies scenes in depth as preparation for performance. Course goal is the presentation of

fully realized characterizations in those scenes studied, integrating the elements of the actor's craft learned in the prerequisite courses. Prerequisite(s): THEA 643 and junior standing.

**THEA 653. History of Costume (3).**

Lab. arr. Historical survey and individual research of dress from ancient Egypt to present day emphasizing social, political, economic and religious influences. Theory and practice of adapting period styles to the stage. Prerequisite(s): THEA 253 or departmental consent.

**THEA 675. Directed Study (1-4).**

Cross-listed as COMM 675. Individual study or projects. Repeatable for credit with departmental consent. Prerequisite(s): departmental consent.

## WOMS - Women's Studies

Courses numbered 500 to 799 = *undergraduate/graduate*. (Individual courses may be limited to undergraduate students only.) Courses numbered 800 to 999 = *graduate*.

**WOMS 508. Women and the Environment (3).**

On completion of this course, students should be able to appreciate and understand: environmental challenges at a local, regional and global scale; gender and environment; the role of women in the environment; case studies of women's leadership and contribution to environmental custodianship; critical analysis and military-industrial discourse in relation to gender; relationships between environment and interactions with different types of global, illicit trade. *Course includes diversity content.*

**WOMS 510. Hollywood Melodrama: The Woman's Film (3).**

Melodrama, as a "woman's genre," is important to the development of feminist film criticism, which interrogates the contradictory meanings of motherhood and family within this culture. Through readings and films, this course provides a stylistic, literary and cultural/historical background for this 19th-century form with a specific focus on the woman's film and the family melodrama which highlight woman's position within the home. Uses textual analysis and some psychoanalytic criticism to explore and critique the fantasies and desires expressed in the visual excesses of film melodrama. *Course includes diversity content.*

**WOMS 511. Women in Early America, 1600-1830 (3).**

*General education humanities course.* Cross-listed as HIST 511. Focuses on women and gender in U.S. history between 1600 and 1830 by examining the lives, experiences, and interactions with social, political and economic systems of women. Students read articles, books and primary documents that examine women's experiences from the first colonial contact with Native Americans to the dawn of the first women's movement in the 19th century. Focuses specifically on colonization, regionalism, the roles of race and ethnicity in the construction of gender, women in religious life, the impact of the American Revolution, Republican Motherhood, and women's contributions to the public sphere and market economy. In the end, students should walk away with an understanding of women in early U.S. history and of the major historical debates concerning women's and gender history. *Course includes diversity content.*

**WOMS 513. Issues and Perspectives on African Women and Globalism (3).**

*General education humanities course.* Cross-listed as ETHS 381AC. For those whose primary notions of Africa derive from little or unconfirmed information. Uses research, writing and other expressions by African women to present women dealing with their postcolonial and globalized national contexts. When possible, a teleconference with an author is arranged for a more global learning experience. Learning through local African communities, dramatic/artistic expressions and group projects is encouraged. Aims to help students develop critical

and independent thinking about Africa, African women and their global engagement. *Course includes diversity content.*

**WOMS 514. Women in the Middle East (3).**

Cross-listed with WOMS 380AC. Examines Arab women of the Middle East. Focuses on women in the region historically designated as the fertile plains—Egypt, Lebanon, Syria, Jordan and the Palestinian Territories. Covers the impact of Western colonialism and global geopolitics on women's lives; women's activism in relation to nationalism and women's rights; Western racial stereotypes of Arab women and men and their role in foreign intervention in the 20th and 21st centuries. Provides case study in the relationship of nationalism and women's rights as framed by Arab women's studies. *Course includes diversity content.*

**WOMS 516. Sociology of Gender (3).**

*General education humanities course.* Cross-listed as SOC 516. Focuses on historic and current gender issues within a national and global context. Students explore both the individual and structural-level factors that influence the experience of "doing gender" within a variety of social institutions including potential avenues for change and collective action. *Course includes diversity content.*

**WOMS 530. The American Woman in History (3).**

*General education humanities course.* Cross-listed as HIST 530. Examines the history, status and changing role of women in American society. *Course includes diversity content.*

**WOMS 532. Women in Ethnic America (3).**

Cross-listed as HIST 532. An in-depth, thematic understanding of the historical experiences of women of color across space and time in U.S. history. Employing a female-centered framework of analysis, course probes the intersections of race, class, gender and sexuality in women's lives. *Course includes diversity content.*

**WOMS 534. Psychology of Women (3).**

*General education humanities course.* Cross-listed as PSY 534. Psychological assumptions, research and theories of the roles, behavior and potential of women in contemporary society. *Course includes diversity content.* Prerequisite(s): PSY 111.

**WOMS 536. Writing By Women (3).**

Cross-listed as ENGL 536 and WOMS 381C. Explores various themes in critical approaches to literature composed by women writers, especially those whose works have been underrepresented in the literary canon. Genres and time periods covered, critical theories explored, and specific authors studied vary in different semesters. *Course includes diversity content.*

**WOMS 541. Women, Children and Poverty (3).**

*General education humanities course.* Cross-listed as SCWK 541. Addresses the problem of poverty among women in the U.S. today, and examines existing and proposed public policies designed to alleviate the problem. Explores theoretical models of poverty policy analysis and the role of values in their formulation and implementation. Discusses issues of age, race and family; special attention is given to poverty among Kansas families. *Course includes diversity content.* Prerequisite(s): 6 credit hours of social science.

**WOMS 542. Women in Other Cultures (3).**

Cross-listed as ANTH 542 and ANTH 397R. Deals with the place of women in primitive and other non-Western societies, in various aspects of culture: political, economic, social, religious, domestic, intellectual, psychological and aesthetic. Compares and contrasts societies in order to see how different kinds of roles for women are related to different kinds of societies. *Course includes diversity content.*

**WOMS 570. Directed Readings (1-3).**

For students who wish to pursue special reading or research projects not covered in coursework. Prerequisite(s): instructor's consent. *Course includes diversity content.*

**WOMS 571. Contemporary Issues and Perspectives: LGBTQ (3).**

*General education humanities course.* Cross-listed as SCWK 571. Explores contemporary issues within the lesbian, gay, bisexual, transgender and queer communities. Explores personal attitudes regarding the social context for LGBTQ persons as well as other issues which have emerged as matters of concern and celebration with LGBTQ individuals and communities. Empowerment principles are employed and used to highlight a positive and affirming framework of the LGBTQ community. Students acquire basic skills in understanding issues of diversity and other contemporary conditions of life and culture. *Course includes diversity content.*

**WOMS 579. Asian Women in Modern History (3).**

Cross-listed as HIST 579 and ETHS 579. Examines women's historical and contemporary experiences in Asian America and eight major countries in modern Asia. Covers topics on Asian women's activism in relation to nationalism and women's rights. Investigates Asian women's roles and statuses in the family and society and their educational attainment and contributions to the export-oriented industrialization of the Asia-Pacific region. Examines the intra-regional migration of female guest workers among various countries in Asia. Traces the ways in which the changes in immigration laws during the 20th century affect patterns of Asian women's migration to the United States. Introduces writing that integrates Asian women's lives and Asian American experiences into the discourses on ethnicity, national origin, class, gender and sexual orientation in the United States and the Asia-Pacific region. *Course includes diversity content.*

**WOMS 580. Special Topics (1-3).**

Focuses on advanced topics of interest to women's studies. *Course includes diversity content.*

**WOMS 580J. Domestic Violence (3).**

Cross-listed as SCWK 590, CJ 522 and CJ 381V. Deals with the roots of domestic violence embedded in family roles, legal systems, religious beliefs, and the psychology of women, children and men. Also covers the consequences and prevention of family abuse. Includes discussion of literature and films. *Course includes diversity content.*

**WOMS 580T. Women and Aging (3).**

Cross-listed as AGE 515. Introduces students to issues in aging that are unique to women, to women's diverse developmental patterns, and to research methods appropriate for studying aging women and their life experiences. Topics include physical change, role transitions and adaptation from a life span perspective. *Course includes diversity content.*

**WOMS 580Z. Dangerous Women in Film (3).**

The cinematic body of the woman has long been the central focus for theories of spectatorship and psychoanalytic film theory as well as feminist media and cultural studies. As such it provides rich material for an interdisciplinary conversation not only about socio-cultural and psychological constructions of gender, sexualities, and power; but also on the disparate (oftentimes simultaneously depicted) images of woman as both positively empowering and negatively demeaning. By focusing on the role of empowered female iconography expressed visually and thematically, this course explores various filmic representations of "dangerous" women, and examines how and why these representations are politically, socially, and theoretically significant. We apply various critical methods of analysis (psychoanalysis, ideology critique, close textual analysis, narrative) to approach women's representation, in particular, the *Femme Fatale* (dark lady, evil seductress) and the

Fighting F-toy (action chick, latex killer) to examine the influential role of the male/ spectator gaze on the creation of the empowered female icon. Because this course is for both new and experienced film students, the curriculum includes both introductory and advanced content.

*Course includes diversity content.*

**WOMS 587. Theories of Feminism (3).**

Because feminism is not a single ideological stance or perspective, course examines a variety of ideas underlying feminist cultural critiques and visions for social change. Discusses the contribution of women's studies to various academic disciplines. *Course includes diversity content.* Prerequisite(s): WOMS 287, 387, or 6 hours of women's studies courses, or instructor's consent.

**WOMS 588. Gender, Race and the West/East Divide (3).**

*General education humanities course.* Examines critically the role of gender and race in the making of a supposed essential divide between the West and the East. Students are introduced to Edward Said's concept of Orientalism and the field of critique that targets how Europe and the U.S. craft an identity the West via its other, called variously, the Orient, Islam, the Muslim world, and the Arab world. Questions explored include: What is Orientalism? What is the relationship between colonialism/imperialism and the representation of the Orient or the East? How, for whom, and for what purposes do gender and race matter in this construct of a divide between West and East? These questions are examined across genres and media — i.e., in travel accounts, film, literature, policy making and news reportage. *Course includes diversity content.*

**WOMS 701. Selected Topics in Women's Studies (3).**

Repeatable for credit up to 6 hours. *Course includes diversity content.*

Prerequisite(s): departmental consent.

**WOMS 701A. Map Intersections of Gender (3).**

*Course includes diversity content.*

**WOMS 701B. Women and the Environment (3).**

*Course includes diversity content.*

**WOMS 870. Directed Readings (1-3).**

For graduate students to pursue research in areas not normally covered in coursework. *Course includes diversity content.* Repeatable for credit with departmental consent. Prerequisite(s): instructor's consent.

**WOMS 880. Seminar in Women's Studies (3).**

Intensive study of selected women's studies topics. Seminar discussion, reports and research project. Previous topics include Advanced Theories of Feminism, and Contemporary Women's Fiction. *Course includes diversity content.* Repeatable for credit with departmental consent. Prerequisite(s): instructor's consent.



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