



HLC Accreditation 2020-2021

## **Evidence Document**

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Academic Affairs

Institute for Interdisciplinary Creativity

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## **Institute for Interdisciplinary Creativity Annual Report 2016-2017**

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**Additional information:**



**2016-17 Annual Report**  
Institute for Interdisciplinary Creativity



# **The Institute for Interdisciplinary Creativity**

## **2016-2017 Annual Report**

This report deals

### ***History, Mission, Description***

The Institute for Interdisciplinary Creativity founded at Wichita State University in Fall 2016 was one of the first in the country. A University committee was created in 2014 to explore the development of a program that lied in the intersection of arts and technology, with ventures oriented courses that targeted innovation, risk taking, flexibility, and working at industry pace. Building on strategic initiatives on innovation and applied learning the proposal with quickly supported and approved by the university and the board of regents. The Institute for Interdisciplinary Creativity was developed to house the program to maintain its independence and promote interdisciplinarity.

Development of the IIC and the MID program emerged as an initiative to directly address these goals: applied experiential learning and research; interdisciplinary studies; capitalize on emerging trends, accelerate discovery, creation, and transfer of new knowledge; and empower students to create a culture and experience that meets their needs. The program is dependent on the integration of interdisciplinary curricula across the university. Students are taught to recognize and seize opportunities. All stakeholders benefit from the success of the MID program including students, faculty, WSU, and our community. In fact, faculty are encouraged to be part of student ventures and vice versa. Each student is receiving an applied active learning experience that involves teamwork to overcome challenges, which has resulted in a vibrant and engaged community. As this develops further with resources and faculty support, it will be the driver of positive risk-taking. Student's are/will be expected to work with organizations located in the innovation campus. The concepts of design that these students may focus on would go beyond what traditionally is thought of as design (generally a product design).

### ***Masters of Innovation Design program***

The MID program is a graduate degree of the IIC, which is housed in the Office of AA. The IIC involves partnerships between all of WSU's degree granting Colleges (Fine Arts, Education, Engineering, Liberal Arts & Sciences, Business, Health Professions, and Honors). Our students come from various disciplines, including engineering, business, art, media design and more. Some are very strong academically; some have extensive backgrounds in industry; some have brilliant ideas; but all have passion for creativity and bringing new ideas to the marketplace. The process of innovation and design are taught and students learn to recognize opportunities. Students enroll to be part of a likeminded cohort that shares creative tinkering and networking experiences. The experiment-driven active learning approach creates structure and process to the chaos that characterizes the early stages of creative pursuits. The curriculum currently has four required courses and the remainder of the program is individualized to assist the student develop as an innovator in their specified area. Students can work with faculty they have identified that can further develop their strengths or weaknesses. They are encouraged to take advantage of the

expertise and resources available at WSU to develop ideas and work to bring them to market. They can also work with one of the many research clusters on campus that have intellectual property based on faculty research. Faculty have the opportunity to tap the MID talent to help bring their research to a stage that can be commercialized.

IDEA + ACTION = MID

The MID program strongly encourages the development of startups, which is vital to our economic stimulus. Nationally, new businesses account for nearly all net new job creation and almost 20 percent of gross job creation. Companies less than one year old have created an average of 1.5 million jobs per year over the past three decades. Amongst the states, Kauffman Foundation ranks Kansas as 43<sup>rd</sup> for startup activity or rate of new entrepreneurs. By comparison Oklahoma is 29<sup>th</sup>; their rate of new entrepreneurs, which is the percent of residents that become entrepreneurs each month, is 35 percent higher than that of Kansas. The structure and objectives of the MID program have the potential to directly impact our startup community by creating an environment more conducive for ideas to move to market.

### ***Aspirational vision***

The IIC echoes the ideas of Plato, that there is a oneness of knowledge and innovation breakthroughs will come from interdisciplinary connections. Out of dissolving disciplinary walls will emerge innovation. The IIC and the MID program is the hub to which academics and industry can converge discovery and innovation. The program was launched in 2016 and is founded in the university and the Graduate School ideals and goals.



### **2016-2017 Highlights**

- Enrolled first cohort of MID students (5)
- 4 startups launched
- Developed 3 new Innovation Design courses
- Submitted Curriculum Change Form to add Design Thinking course
- Developed Graduate Enrollment Management Plan
- Enrolled student from I-35 corridor initiative (Kansas City)
- Developed Innovation Design Faculty Fellow Program (1 Fellow from Engineering)
- Course taught by industry expert
- Established industry partnerships with Gideon BioTech
- Established partnership with WSU Ventures
- Booth at Futurepreneur
- Proposed development of Innovation Factory

## **PERSONNEL OF THE INSTITUTE FOR INTERDISCIPLINARY CREATIVITY**

For the academic year 2016-17, the faculty and staff of The Institute for Interdisciplinary Creativity included:

Jeremy Patterson, Director (.75)  
Jan Hudson (.25)

## **INSTITUTE FOR INTERDISCIPLINARY CREATIVITY COUNCILS & ASSOCIATED FACULTY**

MID Program Committee members for 2016-17 were:

- Barbara Chaparro, Professor, Human Factors
- Gaylen Chandler, Professor, Entrepreneurship
- Rachel Crane, Associate Professor and Music and Fine Arts Librarian
- Lisa Garcia, Clinical Educator, Anatomy & Physiology, Physical Therapy
- Rodney Miller, Dean, College of Fine Arts
- Scott Miller, Chair and Professor, Aerospace Engineering
- Jeremy Patterson, Director and Professor, Institute for interdisciplinary Creativity
- Jeff Pulaski, Assistant Professor, Graphic Design

The **admissions committee** consisting of the members listed above review student applications. In reviewing applications, the 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 applicant seems suitable an interview is scheduled. If admitted, the IIC Director is listed as the faculty advisor to assist the student in developing a plan of study.

The **curriculum changes committee** also consisting of the members listed above review proposed changes to courses or presented new courses. The committee unanimously approved 4 new ID courses. Courses began in Fall 2017.

## **FACILITIES**

The IIC is housed in the Office of Academic Affairs. The MID students access WIDGET, which is an ideation space located on the main floor of Devlin Hall.

## **THE JOHN A. SEE INNOVATION AWARD PROGRAM**

The John A. See Awards began in 2014 after See donated \$1 million to provide prizes to WSU faculty and students conducting outstanding research or producing other significant work. See was director of flight test and prototype development at Boeing until his retirement in 1985. Although not a Wichita State alumnus, he has been a generous WSU supporter who values the importance of higher education and believes in WSU's

commitment to growth and pioneering work.

The IIC facilitates the John A. See Award. This includes advertising for the award, advising faculty and students pre and post award, organizing the committee to review proposals, handling budget transfers and monitoring spending.

In Spring 2017 three Wichita State University researchers and two students were awarded the John A. See Innovation Award, totaling \$50,000. The faculty winners were Davood Askari, Gisuk Hwang and Bill Hendry.

- Askari, assistant professor of mechanical engineering, won for his research project, “An innovative high-performance nanocomposite materials system reinforced with highly-interlocked Carbon Nanotubes.”
- Hwang is also a member of the mechanical engineering department; his winning research project is titled “Efficient water boiler using 3D microstructured surface.”
- Hendry, professor and chair of biological sciences, won for his project, “Developing a human patient “Avatar” system particularly relevant to head and neck squamous cell cancer.”

For the first time, students were also recognized for their venture-based projects.

- Johnna Crawford from the english department won for her project titled “Gage: emotional processing and mood management software”.
- Max Hinman, student in the innovation design program won for “Localholic: online social marketplace for Wichita small businesses.”

## **THE INSTITUTE FOR INTERDISCIPLINARY CREATIVITY BUDGET**

The Fiscal Year 2017 budget for The Institute for Interdisciplinary Creativity was as follows:

Total Base Budget: \$10,000

## **THE INSTITUTE FOR INTERDISCIPLINARY CREATIVITY COURSES (IIC & ID)**

The following IIC / ID – prefix courses were offered in the 2016-2017 academic year:

IIC 301	Leadership is Essential Seminar (3 Credits)	Fl 16/Sp 17
ID 754	Product, Service, and Process Prototyping	Sp 17
ID 840	Innovation in Practice	Fl 16/Sp 17
ID 841	Project	Fl 16/Sp 17
ID 842	Thesis	Fl 16/Sp 17

The IIC also supported one of the required courses offered in other colleges; ENTR706 Seminar in New Product Development & Technology Development

## **THE INSTITUTE FOR INTERDISCIPLINARY CREATIVITY GRADUATES**

The 2016-2017 academic year was the first year of the program and there were no students that had fulfilled the degree requirements for graduation.

## **THE INSTITUTE FOR INTERDISCIPLINARY CREATIVITY ADVISING**

Students in the MID Program are assigned the Program Director as their advisor, unless students seek other faculty and they accept the role. Through 2016-2017, the Director advised all MID students. Academic advising and course building is individualized to the students needs and goals make the sessions very time intensive.

## **ENROLLMENT**

The MID program was officially launched in the Fall of 2016, but admission was approved for two students in Spring semester 2016. Spring 2017 enrollment was nine students, three are international, three work full-time. Two additional international students were accepted but denied visas, which seemed to be linked to their country of origin (Nepal and Pakistan) and no offer of graduate assistantships. The MID program is currently capped at 20 students, but can be adjusted as resources grow and faculty across campus begin to play a role in advising/mentoring.

*MID Student Enrollment 2016-2017*

Spring 2016	Fall 2016 Official Program Launch	Spring 2017
2	5	9

Enrollment is a tracked measurable outcome important to sustainability of the university. However, it is important to recognize that the IIC and the MID program was developed through WSU initiatives such as the 'Big Ideas' and the Strategic Plan. As a unit they directly address goals 1-6 with an emphasis on interdisciplinary curricula. Enrollment numbers within the program do not represent the number of students involved with or being advised through the MID program. Students enrolled in other programs (undergraduate or graduate) can become involved with this unique cohort. Students that have ideas or aspirations beyond their program have found being involved with the program useful.

## **STRATEGIC PLANNING**

Seven Goals were identified though the development of the Graduate Enrollment Management Plan. A detailed 5-year plan is attached as Appendix A.

## 1. Enrichment opportunities / building a culture

- Funding competitions
- Mentoring programs
- Networking events
- Develop efficient method for individualized advising/mentoring
- Develop high demand interdisciplinary courses (design thinking, sensors & circuits for non-engineers, wearable design studio)
- Allow student to get credit hours for completing the I-Corp / Lean Launch programs

## 2. Develop sustainable and innovative interdisciplinary tracks across the university and community including summer professional programs that are fee based (Design Thinking should be ready Summer 2018).

Develop innovation enrichment program: collaboration with ENG, FA, CoEd, ENTR, MID. Select students from any program/major who are creative entrepreneurial. Merge innovation with their 2 year Masters curricular experience; INNOVATION in PRACTICE

- i. SEM 1, visit start ups, network, ENTR conferences, learn to pitch, research products, branding communication skills
- ii. SEM 2, design thinking, ENTR process, develop idea, IP, connect with mentor
- iii. SEM 3, Adv design thinking, experience with company, hands-on learning, meet with successful ENTR and with 1<sup>st</sup> time start-up owners
- iv. SEM 4, learn how to raise money, KickStarter, advanced experiential experience in product development company, guidance to launch

## 3. Develop collaboration with Kansas City, OKC, Tulsa, Dallas for experiential learning opportunities and student recruitment.

- Continue monthly presentations in KC at innovation hubs
- Expand to other areas with focus on Tulsa
- Bring in speakers from I35 corridor communities

## 4. Enhance visibility of the program

- Organize information sessions for faculty and students
- Restructure and design website.
- Add FAQ section
  - Develop branding for the program

## 5. Create Advisory Board; Create Faculty Council; Review current Admissions Committee

- Evaluate the 4 required courses (50% of current students work full-time; curriculum offerings must meet demand)
- Further flexibility in course selection (this is #1 reason for entering program)

## 6. Increase the number of students/teams participating in local and regional venture competitions



7. Target areas of WSU innovation focus: manufacturing, bio-tech, health tech, wearable tech, mobile tech, early childhood education, STEM, analytics, software usability, experiential tech. Develop funding mechanism for graduate students with specific strengths to assist in building clusters (i.e., analytics – one student that can assist several projects across campus)

## **INNOVATION DESIGN FACULTY FELLOWS INITIATIVE**

Biomedical Engineering faculty, Gary Brooking, PhD was named the IIC's first Innovation Design Faculty Fellow

## **ENGAGEMENT**

Develop campus and community programs that take advantage of ongoing MID talent. MID students are tasked with creating, implementing, and/or participating in programs on topics of technology development, ideation, design, product development, scientific research, or other creative projects. Some examples of activities include;

- Tech for kids, MID students developed start-up (DINO) for early education products on entry-level coding/robotics/engineering instruction. Venture was an entry in the Kansas City Tech Week Venture Competition.
- IIC and WIDGET have organized a tech academy for 4th & 5th graders. Mixed boys & girls meet on Sundays. Program began Fall 2016 and ran through Spring 2017.
- Developed partnership with Wichita North High School BioMedical Program to assist with senior projects. MIDs meet with HS students to help them gain skills in taking their presentation beyond the tri-fold (branding, website, animation, modeling, video). Encourages engagement and connection to WSU.
- Students were part of an internal WSU research award (MURPA) that designed and developed a mouthpiece that includes sensors for measure tongue function.
- IIC submitted a infrastructure grant in collaboration with the College of Education to Steelcase Furniture to renovate an existing space into an applied learning center. (Application was unfunded)
- All MID students participated in the Shocker New Venture Competition

Appendix A

**Five-Year Strategic Plan for the Masters of Innovation Design. Pathways to address goals**

Specific action items and measurements as they relate to program transformation

**1: Enhance academic quality and student success**

Most students entering the MID program do not know exactly what they will be doing after they have completed the degree. This group of academic wonderers that do not believe they belong in a structured degree has been embraced through the MID program where students can find direction through exploration. The MID aims to provide the support and resources needed for students to follow a non-linear, interdisciplinary, and occasionally random direction that allows students to develop a vision of their future. Support and resources include our ability to offer transformational experiences in entrepreneurship, research, service learning, or other real world learning to trigger passions and then link that passion to career opportunities. The long-term success of the MID will be dependent on faculty across campus becoming active, positive, and flexible mentors for students as they go through the program.

Strategy	Approach	Measure
<p><b>Ensure effective number of quality (appropriate) faculty/mentors to deliver the program that we are promoting.</b></p> <p><b>Ensure outside faculty have support to allow them to focus on transformational experiences for students.</b></p> <p><b>Ensure faculty evaluations are clear in expectations regarding interdisciplinary activity.</b></p>	<p>Work with Office of AA and College Deans to encourage hiring of new, broadly talented and diverse faculty interested in interdisciplinary work.</p> <p>Work with Office of AA and College Deans to encourage joint appointments.</p> <p>Use data-driven process to determine student-to-faculty ratios ideal for innovation</p> <p>Increase number of ID courses taught by faculty</p> <p>Develop a facility plan to ensure the program has the physical space to support &amp; recruit faculty</p> <p>Work with Foundation to raise funding for fellowships, professorships, entrepreneurs in residence</p>	<p>Increased number of Innovation Design Faculty Fellows.</p> <p>2 and 3 year graduation rates</p> <p>1 year retention rates</p> <p>Increased number of MID students winning regional academic or venture based awards</p> <p>Maintaining student-to-faculty ratio of less than 15:1 in ID core courses as the program grows</p>
<p><b>Enhance curricular quality through collaborative teaching and integration of technology.</b></p> <p><b>Further integrate</b></p>	<p>Encourage an education leave program for faculty to develop new interdisciplinary courses, especially for those that implement new technology</p>	<p>Number of team taught interdisciplinary courses</p> <p>Number of students taking entrepreneurship electives</p>

<b>transformational experiences (entrepreneurship, research, application, etc) into the curriculum</b>	<p>Develop alumni network; connect alumni from outside disciplines to student</p> <p>Engage with business owners to bring in real world experiences</p> <p>Develop revenue generating programs that meet student and community demand; use revenue to invest in faculty and program</p>	<p>Number of students involved with faculty research</p> <p>Number of alumni engaging with students</p> <p>Number of new seminars / workshops / professional programs developed and revenue</p> <p>Develop Fall ID500 Design Thinking course into summer professional program for 2018</p>
<b>Improve the MID capacity to compete for high quality students</b>	<p>Work with graduate school to increase number and compensation for graduate students</p> <p>Encourage researchers across campus to consider MID students as GRAs</p> <p>Track and promote success of our graduate students</p> <p>Recruit students from out of state and internationally</p> <p>Encourage Colleges and Foundation to include MID as option for some scholarships</p>	<p>Stipend levels</p> <p>Number of graduate applications and yield rates</p> <p>Proportion of graduate students supported on external funding</p> <p>Data on success of students after graduation</p> <p>Number of companies developed during and after program</p> <p>Number of non-Kansas resident students</p>

**2. Attract and support faculty involvement with the MID**

Strategy	Approach	Measure
<b>Ensure that compensation for involved faculty and staff is competitive(?)</b>	<p>Work with Office of AA and College Deans to identify resources (including time release)</p> <p>Meet with Honors College to learn about current Honors Fellows Program and strategies</p>	<p>Establish ID Fellowship amount. Compare to other peer programs with fellowships</p> <p>Increase number of interested tenured &amp; non-tenured faculty to be ID Fellows</p>

		Increase retention of ID Fellows
<b>Develop a 3-year hiring plan and work with Senior VP &amp; Provost to develop resources to seize hire opportunities.</b>	<p>Assess focus areas of potential growth in the MID that complement other colleges (cluster)</p> <p>Prioritize a hire to stabilize MID program and ensure sustainability</p> <p>Develop a space plan that integrates with hiring plan</p>	<p>Aiming for a 15:1 student-to-faculty ratio; at 30 students add 1 FT faculty</p> <p>Increase sponsored dollars; industry partnerships</p>
<b>Implement MID College Liaison Program</b>	<p>Recruit faculty liaison for each College to bridge MID students and departments</p> <p>Establish ecosystem of ‘innovation’</p>	<p>Increase number of interdisciplinary projects</p> <p>Increase number of MID students receiving assistantships from outside departments</p>
<b>Improve access to resources for faculty and staff fellows</b>	<p>Ensure adequate support for faculty and staff for professional development in areas of innovation, creativity, &amp; interdisciplinary work</p> <p>Ensure support for materials needs for instruction and mentoring</p> <p>Funding for faculty memberships to Go Create</p>	<p>Increase number of active learning experiences for students</p> <p>Increase academic activity in Go Create</p>

***3. Advance the discovery of new knowledge, creative thought, and innovation through increasing and diversifying industry partnerships and translational research***

<b>Strategy</b>	<b>Approach</b>	<b>Measure</b>
<b>Strengthen the ‘centers’ supporting the MID and develop new interdisciplinary centers related to innovation</b>	<p>Identify faculty fellows that strengthen the focus areas of the ‘centers’</p> <p>Promote ‘centers’ areas of strength to gain involvement across the region</p> <p>Expand from WIDGET broad innovation approach to develop next tier ‘center’ for focus corporate approach to innovation</p>	<p>Increase competitive funding</p> <p>Increase number of ideas from community pitched to ‘centers’</p> <p>Develop top tier innovation center – Innovation Factory in Devlin</p> <p>Increase number of companies being assisted by</p>

	<p>Develop membership approach to 'centers'</p> <p>Work with ORTT, WSU Ventures, and Foundation to develop increased opportunities to seed innovative projects/research</p>	<p>MID students</p> <p>Increase number of invention disclosures linked to MID faculty fellows and students</p>
<b>Increase and diversify sponsored research and partnerships</b>	<p>Identify areas to increase involvement of Foundation funding</p> <p>Work with ORTT and Office of AA to encourage faculty to collaborate with IIC and MID when seeking funding – strengthen through interdisciplinary approach</p>	<p>Increase sponsored dollars; industry partnerships</p>
<b>Promote venture activities and scholarship to attract faculty and students</b>	<p>Highlight activities on MID website</p> <p>Highlight activities through Strategic Communications</p> <p>Develop a strategy for nominating faculty fellows for internal research awards – address eligibility with Faculty Senate</p>	<p>Number and media hits on related stories</p>
<b>Engage undergraduates in innovation activities</b>	<p>Develop system to track undergraduate students exploring innovation/ventures based projects</p> <p>Encourage students to engage in undergraduate innovation earlier; in freshman year (explore TechConnect program through VentureWell that targets first year students)</p>	<p>Increased number of undergraduate involved with venture competitions</p> <p>Increase number of undergraduates expressing interest in MID</p>

***4. Contribute to the economic and civil vitality of the region through interdisciplinary efforts that increasingly define WSU as an innovative institution***

<b>Strategy</b>	<b>Approach</b>	<b>Measure</b>
<b>Innovation and entrepreneurship</b>	<p>Expand/improve support to faculty and students regarding opportunities to participate in venture based projects and</p>	<p>Number of students starting companies</p> <p>Increased enrollment in</p>

	<p>programs</p> <p>Develop related courses and professional programs that gain community interest</p> <p>Present on innovation in communities along I35 corridor</p> <p>Support faculty and students in their efforts to launch start ups</p> <p>Raise student scholarship funds to support students participating in starting a company and develop resources to hire an entrepreneur in residence</p> <p>Develop program/course to bridge iCorps and LeanLaunch programs in entrepreneurship to connect academics</p>	<p>courses and professional programs</p> <p>Increased number of non-Kansas students</p> <p>Number of invention disclosures</p>
<b>National and International industry partnerships and student experiences</b>	<p>Raise funding to provide financial support for students and faculty to participate in corporate workshops, innovation conferences, venture competitions</p>	<p>Number of students participating in programs off campus</p>
<b>Bring WSU to the community to solve problems and enrich the innovation ecosystem</b>	<p>Collaborative approach to establish ecosystem of 'innovation'</p> <p>Develop collaborative educational programs with College of Education (after school programs led by MID students)</p> <p>Brand 'centers' (Innovation Factory) to invite anyone with an idea to visit, pitch, and be involved with ideation and feasibility discussions</p>	<p>Involvement with WSU/community projects</p> <p>Number of public presentations</p>