

US ASSOCIATION FOR SMALL BUSINESS & ENTREPRENEURSHIP

NOMINATION FOR NATIONAL MODEL UNDERGRADUATE ENTREPRENEURSHIP PROGRAM

NOMINEE

IOWA STATE UNIVERSITY

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USASBE NOMINATION NATIONAL MODEL UNDERGRADUATE ENTREPRENEURSHIP PROGRAM

Nominee

Iowa State University
Ames, Iowa

Program Purpose

Entrepreneurship at Iowa State University is an integrated program consisting of:

- a) Undergraduate Education
 - a. A university wide minor in entrepreneurship
 - b. Over 80 courses as well as experience-based learning options in entrepreneurship. Courses range from teaching skill sets to those expressly focused on entrepreneurship.
- b) Programming
 - a. Non-credit and for credit university programs
 - b. Programs targeting audiences external to the university
- c) Experiential Learning
- d) Business Assistance and Development Services
 - a. Technology transfer focus
 - b. Community based business assistance

Nominee Point of Contact for Additional Information

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Primary Program Objectives

Program objectives include:

- Provide exposure to entrepreneurship and innovation to students in every major at Iowa State.
- Offer a menu of learning opportunities ranging in intensity from the academic classroom to providing support launching a business.
- Integrate the academic and business development functions, providing a comprehensive learning opportunity for those involved.
- Pursue efforts to commercialize technology developed at Iowa State and support new venture creation at all levels.

Audiences Served Through Program

- a) Academic Courses - Undergraduate, Graduate, and Post Doctoral Students
- b) Outreach Programs - Students, Faculty, Staff, and the Business/Entrepreneurial Community

- c) Experiential Learning - Undergraduate, Graduate, and Post Doctoral Students
- d) Business Assistance Services - Students, Faculty, Staff, and the Community

The entrepreneurship program at Iowa State was developed as an interdisciplinary program on campus, and it is also intentionally integrated with the business and entrepreneurship community. Many programs interconnect students and faculty with entrepreneurs, investors, and experienced business people.

Program Description

Entrepreneurship at Iowa State was designed at its inception in 1997 as an interdisciplinary program that provides opportunities for students to learn about entrepreneurship - the process of creating value through recognizing and developing opportunities. This interdisciplinary program serves to complement the student's major area of study, in any college, by offering a range of learning opportunities. In addition to a campus-wide undergraduate minor in entrepreneurship and over 80 courses with entrepreneurship content, the university offers a wide range of experiential and outreach learning opportunities for students, faculty, and the entrepreneurial community.

Entrepreneurship education at Iowa State has been designed to embed entrepreneurship through all seven colleges and their 67 departments. Given the breadth and complexity of this task, the Pappajohn Center has worked with faculty representing all seven colleges to:

1. Build awareness among faculty and students of entrepreneurship offerings.
2. Provide entrepreneurship courses specific to each college.
3. Use the minor as the university wide base for undergraduate entrepreneurship education.
4. Provide a range of non-credit educational and experience based learning options.

Specific programs include an interdisciplinary undergraduate minor in entrepreneurial studies, startup internships for undergraduate and graduate students, a new post-doc entrepreneurship fellowship, student clubs and organizations, a summer bootcamp for students, an entrepreneurship learning community, two entrepreneurship study abroad summer course options, an entrepreneurship honors seminar, several speaker events and forums, and numerous other opportunities for learning and engagement among students, faculty and the entrepreneurship community. ISU's model includes a universal entrepreneurship center serving the entire campus and external community in addition to college-specific programs led by a faculty champion and in some cases offering a full blown entrepreneurship center within the college, such as the Colleges of Agriculture & Life Sciences, Veterinary Medicine, and Human Sciences. Iowa State's program continues to build momentum in each of the colleges, with more and more full-time faculty coming on board to develop new courses each year, and with students from practically every major getting involved in learning about entrepreneurship and innovation or launching their own ventures.

Unique Aspects and Features of Program

- To the best of our knowledge, Iowa State was the first institution to offer a truly cross campus minor in entrepreneurship (1997). Participation from all of the colleges has been active since launch.
- Every college at Iowa State is involved in teaching entrepreneurship (Agriculture, Business, Design, Liberal Arts & Sciences, Human Sciences, Engineering, Veterinary Medicine).
 - Oversight of the academic program is provided by the Entrepreneurship Supervisory Committee comprised of Associate Deans from each college.
 - Course development is overseen by the Entrepreneurship Faculty Leadership Committee. This committee is comprised of senior faculty representing each college who are active in teaching entrepreneurship. Each leader is a resource/advocate for students and faculty in their college with an interest in entrepreneurship.
 - Entrepreneurship education at Iowa State is being developed, implemented, and taught largely by tenure and tenure track faculty representing every college at the university. Well over 50 tenure and tenure track faculty are involved in teaching entrepreneurship across campus.
- The university offers a well-integrated mix of academic and experiential learning opportunities for students in every discipline.
- Opportunities are available for students to gain practical experience in startup companies or to receive support and mentoring in launching his or her own company.
- The Entrepreneurial Studies Minor reaches students in all majors with representation relatively equal and consistent among all of Iowa State's colleges.
- In addition to the Pappajohn Center for Entrepreneurship (www.isupjcenter.org), serving as an umbrella organization providing business development, faculty resource development, and outreach activities both on and off campus, new programs have been funded in specific colleges including the Agricultural Entrepreneurship Initiative, the Veterinary Medicine Professorship, and the Engineering CyberInnovation Institute. The College of Human Sciences has just announced the development of an entrepreneurship institute and program within its college and has named a faculty member to lead the charge.
- Iowa State is home to a nationally recognized and successful Research Park and Incubation Facility. The Park has over 50 companies at present, most of which were launched from ISU developed technologies. The Park employs over 200 students annually who are gaining practical experience in a start-up environment.

Revised Entrepreneurial Studies Minor

Although Iowa State has offered entrepreneurship education for over a decade, recent improvements to the program, particularly the minor, now allow us to feel confident that we do offer a model undergraduate entrepreneurship program.

Iowa State recognized that just offering an entrepreneurship minor to students did not ensure that students graduating with the minor were receiving a consistent

education in entrepreneurship. Additionally, tracking enrollment in the minor and other entrepreneurship courses has been a challenging task. In order to provide oversight into the quality and comprehensiveness of courses offered and develop a better tracking method, two interdisciplinary entrepreneurship committees were formed (one at the associate dean level and the other at a senior faculty level). Recommendations resulting from these committees were as follows:

- a) Each course in the minor should be reviewed for content. Those with acceptable entrepreneurship content will be documented in the new catalog; those without acceptable or significant content would be removed.
- b) Every student pursuing the minor must pursue 3 credits of experiential learning.
- c) Clear outcomes for students should be defined.
- d) The colleges should work together to develop a single minor registration process and filing procedures, allowing for better tracking of students.

To address these issues, the following has occurred at Iowa State:

- a) Over the past 18 months, these committees have thoroughly reviewed every course at Iowa State that is included in the entrepreneurial studies minor, including new courses recently funded by the Pappajohn Center for Entrepreneurship as a result of an internal grant program. The result is a comprehensive matrix (see Elective List at <http://www.business.iastate.edu/undergraduate/minors/entrepreneurship>) identifying each course in the minor and whether particular entrepreneurship learning competencies are covered as a theme or significant component of the course or simply just introduced in the course.
- b) The new 15-credit minor structure requires students take 6 credit of core entrepreneurship course, 6 credit of entrepreneurship electives, preferably from the students home college, and 3 credits of experiential learning.
- c) As part of this review, courses with an inherent experiential learning component were approved by the committee and added to the course matrix. Additionally, students now have the option to propose their own experiential learning component. For example, a student participating in the entrepreneurship learning community and running a coffee shop, a student launching her own software engineering or graphic design firm, or a student interning in a start-up company may ask the committee to approve the project.
- d) A collaborative pilot project between the Colleges of Agriculture and Engineering defining clear outcomes for entrepreneurship education was funded by the Pappajohn Center for Entrepreneurship and conducted by a team of professors in Ag Engineering, Management, Political Science, and Engineering Career Services. The result is a summary of clearly defined outcomes in entrepreneurship learning for students. These outcomes will now be replicated and developed for each of the colleges and majors, assuring all students pursuing the entrepreneurship minor are receiving a comprehensive education and can demonstrate learning achieved.

- e) Led by the Associate Dean for Undergraduate Business Education, new forms and a new process for tracking and monitoring entrepreneurship students is now underway.

At last count, over 8,000 of Iowa State's 26,000 students are enrolled in the "key" courses offering entrepreneurship at Iowa State. Additionally, hundreds of students are actively seeking hands-on learning experiences to hone their entrepreneurial skills. Over 60 faculty members are actively involved in entrepreneurship, and many more are actively running their own companies.

Sources of Funding and Support for Program

- 1) Operational funding for the Pappajohn Center for Entrepreneurship comes from private and state funds.
- 2) Additional support for academic offerings and college-specific programming is provided through college and departmental budgets as well as private funds.

Program Benefits for Students

- Entrepreneurship education based on skills and competencies
- Hands-on learning opportunities
- Clear and demonstrated outcomes at graduation
- Awareness of network contacts and resources to support entrepreneurship endeavors now or in their futures

Program Outcomes

- Broad awareness of entrepreneurship educational and assistance resources throughout the entire undergraduate population.
- For students in the minor and entrepreneurship learning community, understanding and skill development in:
 - Opportunity recognition
 - Opportunity evaluation
 - Innovation
 - Creative problem solving
 - Mitigating risk
 - Thinking and acting as a guerilla
 - Resource leveraging
 - Managing ambiguity and uncertainty
 - Building a plan for an innovative concept
 - Implementation of change
 - Entrepreneur process
- A range of non-credit learning opportunities for students with restrictive majors.
- A range of experience-based learning opportunities for students.
- Encouragement and direct support to students with a business or who are interested in starting a business.

Exhibits

- 1) Course Electives Matrix
- 2) www.isupjcenter.org

Exhibit 1: Elective Courses Approved for Entrepreneurial Studies Minor

The matrix below identifies the specific entrepreneurial content covered in each approved course. The matrix further identifies the depth of coverage in each course. Use this to help you determine if an elective best matches your needs and interests in planning your entrepreneurship minor. For your convenience, the required courses (Mgmt 310 and 313) are also included in the matrix.

			Entrepreneurial Skills & Competencies Covered in the Course										
			T=Theme	SC=Significant Component			I=Introduced			NC=Not covered			
Courses by College	Designated for Experiential Credits	Experiential Content Requires Approval	Opportunity recognition	Opportunity evaluation	Innovation	Creative problem-solving	Mitigating risk	Thinking and acting as a guerilla	Resource leveraging	Managing ambiguity & uncertainty	Building a plan for an innovative concept	Implementation of change	Entrepreneurial processes
AGRICULTURE													
AGEDS 311: Presentation & Sales Strategies for Agricultural Audiences			SC	I	NC	SC	NC	NC	I	I	T	SC	I
AGEDS 315: Personal & Professional Leadership in Agriculture			I	I	SC	T	I	I	SC	SC	I	SC	NC
AGEDS 450: Farm Management & Operation			I	SC	T	T	T	NC	T	I	SC	SC	I
ECON 336: Agricultural Selling			SC	SC	SC	T	I	I	NC	SC	T	I	I
ECON 330: Farm Business Management			I	SC	I	SC	I	I	I	I	I	I	I
ECON 331: Agricultural Entrepreneurship			T	T	T	T	SC	SC	SC	SC	T	T	T
ECON 430: Advanced Farm Business Management			T	T	I	T	SC	I	SC	I	SC	I	SC
ECON 466: Agricultural Finance			SC	SC	I	I	T	NC	T	T	SC	I	I
BUSINESS													
ACCT 215: Legal Environment of Business			NC	NC	NC	SC	SC	I	NC	I	NC	NC	NC
ACCT 285: Managerial Accounting			NC	SC	NC	SC	NC	NC	NC	I	SC	NC	NC
ACCT 316: Business Law			NC	NC	NC	SC	SC	NC	NC	I	NC	NC	SC
BUS AD 292: Entrepreneurship & Innovation Learning Community Seminar	YES	YES	I	I	I	I	I	I	I	I	SC	I	SC
BusAd 490E: Entrepreneurship Independent Study in Business	YES	YES											
BusAd 491E: Okoboji Institute	YES	NO	T	T	SC	SC	SC	SC	T	SC	SC	I	T

FIN 310: Corporate Finance			NC	I	I	I	I	I	I	I	NC	I	NC
LSCM 360: Business Logistics			NC	NC	SC	I	SC	NC	T	I	T	I	NC
MIS 434: Electronic Commerce Strategy			T	I	T	T	I	NC	I	I	T	SC	T
MGMT 310: Entrepreneurship & Innovation			SC	SC	SC	I	T	SC	SC	I	I	I	T
MGMT 313: Feasibility Analysis & Business Planning			T	T	T	T	SC	SC	SC	T	T	SC	T
MGMT 370: Management of Organizations			NC	NC	NC	SC	NC	NC	NC	I	NC	I	NC
MGMT 377: Competitive Strategy			SC	I	I	I	I	T	SC	SC	NC	NC	NC
MGMT 410X: Social Entrepreneurship			T	T	T	T	SC	T	T	SC	T	T	T
MGMT 415: Managing New Ventures	YES	YES											
BUSINESS CONTINUED													
MKT 340: Principles of Marketing			I	I	I	NC	NC	NC	NC	NC	I	NC	I
DESIGN													
ARCH 482/582: Professional Practice			SC	I	SC	T	SC	I	I	SC	SC	SC	T
ARTGR 481: Graphic Design Professional Practices			SC	SC	I	SC	SC	NC	I	SC	SC	I	SC
ARTGR 482: Professional Presentation			NC	NC	NC	SC	NC	NC	I	NC	SC	NC	NC
ARTID 461: Interior Design Professional Practice			I	NC	SC	SC	T	T	I	NC	I	I	I
ARTIS 409: Computer/Video Game Design & Development			T	SC	T	T	I	T	SC	T	T	SC	T,SC
CRP 475: Grant Writing			T	SC	SC	I	I	NC	SC	NC	T	SC	SC
LA 341: Contemporary Landscape Architecture			I	I	NC	I	NC	I	I	I	I	NC	NC
LA 441: Professional Practice			SC	SC	I	SC	I	I	SC	SC	SC	I	I
ENGINEERING													
AeR/AE/ChE/CE/CprE/ConE/EE/IE/MatE/ME/SE 298, 398, 498: Cooperative Education	YES	YES											
AeR 499: Senior Design	YES	YES											
AE 201: Entrepreneurship & Internship Seminar			T	SC	SC	SC	I	I	I	I	SC	SC	T
AE/CE/EE 388: Sustainable Engineering & International Development			T	SC	T	T	SC	T	SC	SC	T	I	SC

AE 401: Professionalism Seminar			NC	NC	NC	NC	I	NC	I	I	SC	I	I
AE 415, 416: Senior Design													
ChE 430: Senior Design	YES	YES											
CE 203: Civil Engineering Synthesis I	YES	YES	NC	NC	SC	SC	I	I	I	I	SC	NC	I
CE 204: Civil Engineering Synthesis II			NC	NC	SC	SC	I	I	I	I	SC	NC	I
CE 485, 486: Senior Design	YES	YES											
CprE/SE 329: Software Project Management			NC	I	SC	SC	SC	NC	I	I	SC	SC	NC
CprE/EE/IE/MatE/ME 466: Senior Design	YES	YES											
CprE/EE 491, 492: Senior Design	YES	YES											
ConE 221: Contractor Organization & Management of Construction			NC	I	I	I	I	NC	SC	I	SC	NC	I
ConE 380: Engineering Law			NC	NC	I	SC	SC	I	NC	SC	NC	NC	i
ConE 381, 481: Bidding Construction Projects													
I and II	YES	YES											
ConE 421: Construction Estimating			NC	SC	NC	I	I	NC	T	I	I	I	SC
ConE 441: Construction Planning, Scheduling, & Control			NC	SC	I	SC	I	I	T	I	I	I	SC
ConE 487, 488: Senior Design	YES	YES											
EE/IE/TSM 408: Interdisciplinary Problem Solving			NC	SC	SC	T	I	SC	I	I	I	NC	I
EE/IE/TSM 409: Interdisciplinary Systems Effectiveness			I	SC	SC	T	SC	SC	I	I	I	I	SC

ENGINEERING CONTINUED													
EE/Econ 458: Economic Systems for Electric Power Planning			I	SC	I	T	SC	NC	SC	SC	I	I	I
ENGR 490E: Entrepreneurship Independent Study in Engineering	YES	YES											
ENGR 396, 397 (AerE, AE, ChE, CE, CprE, ConE, EE, IE, MatE, ME, SE: Engineering Internship	YES	YES											
IE 305: Engineering Economic Analysis			NC	T	NC	SC	I	NC	SC	SC	NC	I	I
IE 441: Senior Design	YES	YES											
MatE 413, 414: Senior Design	YES	YES											

ME 412: Legal & Environmental Considerations in Design			NC	SC	NC	SC	T	I	NC	I	NC	I	I
ME 433: Alternative Energy Conversion			SC	SC	SC	T	I	SC	SC	I	SC	SC	SC
ME/WLC 484/584: Technology, Globalization, & Culture			I	I	SC	T	I	I	I	T	I	I	I
ME/Hist 488: History of American Technology			NC	NC	I	I	NC	NC	NC	NC	SC	T	SC
SE 491, 492: Senior Design	YES	YES											
HUMAN SCIENCES													
AESHM 342: Aesthetics of Everyday Experience			SC	I	T	I	NC	NC	NC	NC	SC	NC	NC
AESHM 474: Entrepreneurship in Human Sciences	YES	NO	T, SC	T, SC	SC	SC	I	I	I, SC	I	SC	I	T, SC
AESHM 545: Interdisciplinary Consumer Aesthetics			SC	I	T	I	I	NC	I	NC	SC	NC	NC
EX SP 345: Management of Health-Fitness Programs and Facilities			I	I	I	NC	SC	NC	I	NC	I	I	I
HRI 260: Global Tourism Management			SC	SC	I	I	NC	NC	NC	NC	I	NC	I
HRI 333: Hospitality Operations Cost Controls			NC	SC	NC	NC	I	NC	I	NC	NC	NC	NC
HRI 340: Hospitality & Apparel Marketing Strategies			I	T	I	I	I	NC	I	NC	I	I	I
HRI 455: Introduction to Strategic Management in Foodservice and Lodging			SC	SC	SC	SC	I	I	SC	SC	I	I	T, SC
H Sci 490E: Entrepreneurship Independent Study in Human Sciences	YES	YES											
TC 275/HRI 275: Merchandising			I	T, SC	I	T, SC	SC	I	I	SC	T, SC	I	I
TC 467: Consumer Behavior			SC	I	I	NC	NC	NC	NC	NC	NC	NC	NC
LIBERAL ARTS & SCIENCES													
WLC 584: Technology, Globalization, & Culture			I	I	SC	T	I	I	I	T	I	I	I
CHIN 304: Chinese for Business & Professions			I	SC	I	SC	I	SC	I	T	I	I	SC
FRN 304: French for Business & Professions			I	SC	I	SC	I	SC	I	T	I	I	SC
GER 304: German for Business & Professions			I	SC	I	SC	I	SC	I	T	I	I	SC

RUS 304: Russian for Business & Professions			I	SC	I	SC	I	SC	I	T	I	I	SC
LAS CONTINUED													
SPAN 304: Spanish for Business & Professions			I	SC	I	SC	I	SC	I	T	I	I	SC
Pol S 477/577: Government, Business, & Society			T	T	SC	T	SC	I	I	I	I	SC	I
Pol S 486/586: Science, Technology, & Public Policy			T	I	T	T	T	T	NC	T	I	SC	NC
Pol S 547: Political Leadership & Elites			T	T	SC	I	I	SC	I	SC	I	SC	NC
VETERINARY MEDICINE													
VDPAM 409: Management Pathways in Veterinary Medicine			NC	NC	NC	I	I	I, SC	NC	I	NC	I	NC
VDPAM 414: Veterinary Practice Entrepreneurship			SC	SC	SC	SC	SC	I	SC	I	SC	SC	T

Theme (T) = the skill/competency cuts across several content areas of the course, or is a pedagogical device utilized in a large part of the course.

Significant Component (SC) = the skill/competency constitutes a significant content area in the course.

Introduced (I) = the skill/competency is introduced in the course but not expanded upon to a great degree.

Not Covered (NC) = the skill/competency is not addressed in this course.