IT INNOVATION, MS

School of Interdisciplinary Informatics, College of Information Science & Technology

Vision Statement

Information technology innovation (ITIN) is the interdisciplinary practice of conceptualizing, designing, prototyping, and fielding an IT-based product or service. It focuses on both the technological and entrepreneurial aspects of IT products. Being many-faceted by definition, IT innovation brings together aspects of computer science and management information systems with other disciplines that inform IT design and application such as health care, business, psychology, art, music, or public administration, among many others. It integrates and interfaces a diverse set of disciplines in addition to information technology. In addition, IT Innovation takes a more holistic and immersive approach to idea/product development: It focuses on the ideation, design, and development of an IT-based innovation, as well as on the entrepreneurial realization of this innovation as a profitable or sustainable product or service. There is a great demand for ITIN entrepreneurs and professionals locally, regionally, and nationally, and the MS in ITIN program was created, in part, to prepare a workforce to meet those demands, in addition to satisfying the intellectual curiosity and honing the intellectual capacity of passionate creatives who work in and with technology.

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Program Website (https://www.unomaha.edu/college-of-information-science-and-technology/academics/it-innovation.php)

Other Program Related Information

Fast Track

The School of Interdisciplinary Informatics (SI2) has developed a Fast Track program for highly qualified and motivated students providing the opportunity to complete a bachelor’s degree and a master’s degree in an accelerated time frame. With Fast Track, students may count up to 9 graduate hours toward the completion of their undergraduate program as well as the graduate degree program. Students will work with both undergraduate and graduate advisors to ensure graduate classes selected will count toward both programs, should a student wish to earn a graduate degree in a separate College of Information Science & Technology (CIST) area than their undergraduate degree.

Program Specifics:

• This program is available for undergraduate students pursuing any CIST undergraduate degree desiring to pursue an MS in either the same or a related CIST field.
• Students must have completed no less than 60 undergraduate hours and with at least 24 undergraduate credits yet to complete.
• Students must have a minimum undergraduate GPA of 3.0.
• Students must complete the Fast Track Approval form and obtain all signatures and submit it to the Office of Graduate Studies prior to first enrollment in a graduate course.
• Students will work with their undergraduate advisor to register for the graduate courses.
• A minimum cumulative GPA of 3.0 is required to remain in good standing.
• Students remain undergraduates until they meet all the requirements for the undergraduate degree and are eligible for all rights and privileges granted undergraduate status including financial aid.
• Near the end of the undergraduate program, formal application to the graduate program is required. All applicants will need to meet any other admission requirements established for the MS in selected CIST program. The application fee will be waived if the applicant contacts the Office of Graduate Studies for a fee waiver code prior to submitting the MS application.
• Admission to Fast Track does NOT guarantee admission to the graduate program.
• The admit term must be after the completion term of the undergraduate degree.

Admissions

General Application Requirements and Admission Criteria (http://catalog.unomaha.edu/graduate/admission/)

Program-Specific Requirements

Application Deadlines (Spring 2023, Summer 2023, and Fall 2023)

• Fall: July 1
• Spring: December 1
• Summer: April 1

Other Requirements

• The minimum undergraduate grade point average (GPA) requirement for the MS in IT Innovation program is 3.0 or equivalent score on a 4.0 scale. Applicants should have the equivalent of a four-year undergraduate degree.
• English Language Proficiency: Applicants are required to have a command of oral and written English. Those who do not hold a baccalaureate or other advanced degree from the U.S., OR a baccalaureate or other advanced degree from a predetermined country on the waiver list (https://www.unomaha.edu/graduate-studies/prospective-students/Proof%20of%20English%20Proficiency-%20International.pdf), must meet the minimum language proficiency score requirement in order to be considered for admission.
• Writing Sample: Applicants are required to submit a writing sample about an area of innovation, information technology, or design that is of specific interest to them. This should be a two page double-spaced word processed essay that showcases your unique interest in interdisciplinary ideas and applications in technology, and demonstrates your potential for success in a hands-on and self-directed the graduate program.
• Resume: Submit a detailed resume indicating your work experience and background.
• Letter of Recommendation: One letter of recommendation from a reference who can evaluate your work and/or academic achievements on the following criteria: technical interest, independence and initiative, proficiency with written English, and alignment with the IT Innovation program.
• Applicants with International Transcripts: Any applicant to this program who has completed undergraduate or graduate coursework at an international higher education institution outside of the United States may submit transcripts and degree certificates (with an English translation) in lieu of a course-by-course transcript evaluation from World Education Services (https://www.wes.org/) (WES), Educational Credential Evaluators
(https://www.ece.org/) [ECE], or Educational Perspectives (https://www.edperspective.org/). This graduate program will conduct an in-house credential evaluation of your transcript(s).

- UNO reserves the right to require a course-by-course evaluation from WES, ECE, or Educational Perspectives if the program is unable to complete an evaluation or should there be any questions or concerns about the documentation that is received. The applicant will be notified by the individual program if an external course-by-course evaluation is required.

- *Note: If admitted, official transcripts and degree certificates (with an English translation)/official course-by-course transcript evaluation, and any applicable official exam scores are required.

Non-Degree students interested in taking courses without admission to the MS in IT Innovation degree program may do so with permission of the graduate program committee.

## Requirements

### Foundation Courses

Foundation courses ensure that all students in the IT Innovation program have a strong foundation on which to build the rest of the program.

Foundation courses cannot be used to satisfy the 36 semester hours required for the MS in IT Innovation degree. Students who have not completed all the foundation course requirements may be admitted on provisional status until those requirements have satisfactorily been completed. All must be completed prior to or concurrent with the first six hours of MS in IT Innovation graduate course work.

Foundation Courses include:

- Six credit hours of programming & development courses, examples include: Java, C, C++, C#, Unity, PHP, Python, R, or comparable language.
- Three credit hours of system analysis & design courses, examples include: ITIN 4440 Agile Development, ISQA 8040 Overview Systems Analysis & Design, or ISQA 8220 Advanced Systems Analysis & Design.

### Degree Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ITIN 8000</td>
<td>TECHNOLOGY &amp; INNOVATION-STATE OF THE ART</td>
<td>3</td>
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<tr>
<td>ITIN 8100</td>
<td>INTERMEDIA</td>
<td>3</td>
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<tr>
<td>ITIN 8210</td>
<td>FOUNDATIONS OF IT INNOVATION</td>
<td>3</td>
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<td>ITIN 8220</td>
<td>DESIGN PROCESS</td>
<td>3</td>
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<td>ITIN 8300</td>
<td>RESEARCH FOUNDATIONS</td>
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<td>BSAD 8096</td>
<td>PRINCIPLES OF COLLABORATION</td>
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<tr>
<td>ITIN 8256</td>
<td>INNOVATION VENTURES</td>
<td>3</td>
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<tr>
<td><strong>Electives</strong></td>
<td></td>
<td><strong>9</strong></td>
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All graduate courses offered by institutions in the University of Nebraska system (UNO, UNL, or UNK) not counted elsewhere in the plan of study may be selected as an approved elective for the MS in ITIN, provided the student does not exceed the maximum number of cross-listed courses (8x6) allowed by the Graduate College.

### Select Capstone or Thesis

- **ITIN 8940**  ITIN CAPSTONE I
- **ITIN 8950**  ITIN CAPSTONE II

or
- **ITIN 8990**  THESIS

**Total Credits** 36

## Exit Requirements

Complete the Capstone requirement (ITIN 8940 and ITIN 8950) or the thesis option ITIN 8990.

All candidates completing the thesis option, should carefully review the Graduate College requirements for forming the supervisory committee, Thesis/Thesis Equivalent Proposal Approval forms, and final approval and submission of the thesis.

### Guidance for Capstone Exit Option

There are three main milestones for students completing the capstone exit option:

1. Development of capstone topic: Students will identify a capstone project topic that they would like to pursue. Capstone projects are independent (each student is responsible for their own project) and involves a substantial development component (e.g., application, website, algorithm, hardware systems) of an artifact, system, or product of interest to the student. Students are highly encouraged work with IS&T faculty members to refine their ideas and seek mentors prior to starting the capstone project.

2. Capstone I: Students will take the graduate Capstone I course in the next to last semester of their program. Formal mentors will be assigned to students during this course, and the project idea, viability, and feasibility will be refined during this course.

3. Capstone II: Students will take the graduate Capstone II course in the final semester of their program. Students will work with formal mentors to implement their idea and work towards project realization during this course.

Students are strongly encouraged to identify a capstone project topic during the first 2 semesters of their program and tailor their electives to support the skills and knowledge needed to make their capstone idea a reality.

### Guidance for Thesis Exit Option

There are 3 main milestones for students completing the thesis exit option:

1. Formation of thesis committee: Students will identify an ITIN faculty member with whom they would like to supervise their thesis, to serve as their supervisory committee chair. Working with their chair, students will identify at least two other faculty members with research interests aligning with the students’ thesis topic. All supervisory committee members will then sign the Proposed Supervisory Committee form.

2. Thesis proposal: Students will draft a written thesis proposal outlining the proposed research activities to be conducted for their thesis. The scope and contributions are to be developed with the guidance of the supervisory committee chair. Typically, students then schedule a thesis proposal presentation with their committee members, and the feedback received is used to guide the student to refine their proposal. Once all changes have been finalized, the thesis committee signs the Thesis Proposal Approval form.

3. Thesis document and defense: At the conclusion of the student’s thesis work, they will finalize a draft of the thesis and send it to their supervisory committee for review. Students will then schedule a thesis defense session where they will present the work done to date and answer questions from their committee about the research. The committee will then either approve the thesis outright or request changes. Once all changes have been finalized, the Report of Completion of Degree form will be signed by all committee members.

Since disciplinary norms can vary, students are strongly encouraged to work with their supervisory committee chair to make sure this is indeed their expectations for your committee, since each chair runs these differently.
Quality of Work Standards
The Graduate College's Quality of Work standards shall be applied to foundation courses as well as courses taken as part of the degree program. In particular, the GPC will recommend to the Graduate College that any

1. Student receiving a grade of "C-" or below in any foundation courses will be automatically dismissed from the program or, in the case of unclassified or non-degree students, be automatically denied admission.
2. Student receiving a grade of "C+" or "C" in any foundation course will be placed on probation or dismissed from the program.
3. Student not maintaining a "B" (3.0 on 4.0 scale) average in foundation courses will be placed on probation or dismissed from the program.

ITIN 8000 TECHNOLOGY & INNOVATION-STATE OF THE ART (3 credits)
ITIN 8000 provides a regular forum for IT Innovation graduate students, where the latest developments in the field of IT Innovation are introduced and discussed. The course also functions as a central communication and collaboration hub for graduate students in IT Innovation. Participation is required.
Prerequisite(s)/Corequisite(s): Students in the MS in IT Innovation program may register. Not open to non-degree graduate students.

ITIN 8006 SPECIAL TOPICS IN IT INNOVATION (1-6 credits)
This course is designed to acquaint students with issues which are current to the field or emerging trends in the IT Innovation area. Topics will vary across terms. This course may be repeated, but no topic may be taken more than once. (Cross-listed with ITIN 4000).
Prerequisite(s)/Corequisite(s): Permission of instructor. Additional prerequisites may be required for particular topic offerings.

ITIN 8100 INTERMEDIA (3 credits)
This is an ongoing course that brings together students of the arts and students of scientific disciplines in order to facilitate and promote the creation of intermedia art, and to further explore shared resources, joint research, and exhibition/performance opportunities.
Prerequisite(s)/Corequisite(s): Instructor permission.

ITIN 8210 DESIGN SCIENCE AND THEORY DEVELOPMENT (3 credits)
The purpose of this course is to help students understand theory, theoretical contributions, and design science. Students will approach such questions as: What is a theory? What makes a good theory? Why are theories just theories and not laws? What is not a theory? Following this introduction, we explore design science as a research methodology and Information Technology design theories. Ultimately, students create their own new studies around some design concept.
Prerequisite(s)/Corequisite(s): Graduate standing / permission of the instructor.

ITIN 8220 DESIGN PROCESS (3 credits)
Inter-disciplinary design teams will work together to design and innovate products of the future. The design projects in the course are developed to directly address a problem brought forward by a technology company in the Omaha area in order to provide students with a design experience that directly impacts real-world product development. Students will focus on the technological (interface), physical (ergonomics) and aesthetic quality of design, and will learn how to conduct rigorous user studies in a laboratory setting. Teams will be cross disciplinary and consider all aspects of the design, creation, testing, and fabrication of the products.

ITIN 8256 INNOVATION VENTURES (3 credits)
This team-based course provides students with the opportunity to practice the basic tools of business discovery and validation, both as an instrument for new venture formation and as a core capability for addressing challenges in competitive landscapes. As such, the course lies at the intersection of innovation, entrepreneurship and strategy. Students will develop practical experience by experimenting with and refining business ideas. (Cross-listed with BSAD 8726, ENTR 4720, ITIN 4720, MGMT 4720, MKT 4720).
Prerequisite(s)/Corequisite(s): Admission to a graduate program or instructor permission.

ITIN 8266 USER EXPERIENCE DESIGN (3 credits)
User experience (UX) design is concerned with the application of user-centered design principles to the creation of computer interfaces ranging from traditional desktop and web-based applications, mobile and embedded interfaces, and ubiquitous computing. This course provides in-depth, hands-on experience with real world application of the iterative user-centered process including contextual inquiry, task analysis, design ideation, rapid prototyping, interface evaluation, and reporting usability findings. (Cross-listed with CSCI 4260, CSCI 8266, ITIN 4260).

ITIN 8300 RESEARCH FOUNDATIONS (3 credits)
This course serves as an introduction to research literature and research methodology in the innovation and creativity research domain. Students are introduced to skills, methodological issues, and bibliographic resources to enhance their ability in critically evaluating and conducting research in the IT Innovation field. Through a series of readings, in-class discussions, and lectures the student will select and define a research question, explore the various types of research designs and complete a literature review. This course is structured to make research meaningful and significant and enable students to write effectively.
Prerequisite(s)/Corequisite(s): CIST 2500 or equivalent.

ITIN 8900 INDEPENDENT STUDIES (1-3 credits)
A variable credit course for the graduate student who will benefit from independent reading assignments and research type problems. Independent study makes available courses of study not available in scheduled course offerings. The student wishing to take an independent study course should find a faculty member willing to supervise the course and then submit, for approval, a written proposal (including amount of credit) to the IT Innovation Graduate Program Committee Chair at least three weeks prior to registration.
Prerequisite(s)/Corequisite(s): Written permission required.

ITIN 8910 INTERNSHIP (1-3 credits)
The purpose of this course is to provide the students with an opportunity for practical application and further development of knowledge and skills acquired in the MS in IT Innovation program. The internship gives students professional work experience and exposure to the challenges and opportunities faced by IT professionals in the workplace.
Prerequisite(s)/Corequisite(s): Students must have completed a minimum of 12 credit hours towards the MS in ITIN program. Instructor permission is required to register. Not open to non-degree graduate students.

ITIN 8940 ITIN CAPSTONE I (3 credits)
The purpose of the Information Technology Innovation (ITIN) capstone courses is for ITIN majors to explore, identify, evaluate, design, construct and implement a new innovative product that leverages information technology and includes an interdisciplinary field of study. The capstone is the culmination product of the specific various disciplines a student has selected as the unique combination for his or her degree. This course serves as part one of the capstone project for the ITIN Masters degree. The two courses for the ITIN capstone project are intended to be completed in two consecutive semesters (Fall/Spring).
Prerequisite(s)/Corequisite(s): Must be pursuing ITIN MS degree and have completed: two sections of ITIN 8000, ITIN 8220, 8300, and 3 hours of upper division courses in interdisciplinary area identified in the student's course plan. Not open to non-degree graduate students.
ITIN 8950 ITIN CAPSTONE II (3 credits)
The purpose of the ITIN capstone courses is for ITIN majors to explore, identify, evaluate, design, construct and implement a new innovative product that leverages information technology and an interdisciplinary field. The capstone is the culmination product for prospective graduate and utilizes the discipline(s) a student has selected as the unique combination for his or her degree. This course serves as part two of the capstone project for the Information Technology Innovation (ITIN) program. The two courses for the ITIN capstone project are taught in two consecutive semesters.
Prerequisite(s)/Corequisite(s): Must be pursuing ITIN MS degree and have completed: three sections of ITIN 8000, ITIN 8220, 8300, 8940 and 6 hours of upper division courses in interdisciplinary area identified in the student’s course plan. Not open to non-degree graduate students.

ITIN 8990 THESIS (1-6 credits)
This course is required for the Master of Science degree in the MS in IT Innovation Program. The purpose of this course is to conduct original research in IT Innovation, under supervision of a faculty member, culminating in a paper document that represents the student’s competency in their chosen field, as well as scholarly contributions. With consultation from their committee, MS in IT Innovation thesis students should be prepared to independently complete the writing of their thesis and successfully defend their thesis.
Prerequisite(s)/Corequisite(s): Graduate major in ITIN and approval of the Thesis Advisory Committee.

ITIN 9300 SOCIAL COMPUTING AND ITS APPLICATIONS (3 credits)
It is indisputable that social media and the Internet more broadly reshaped information disbursement and processing. Digital participation and communication has become the 'new normal' and the dividing line between off- and online communities is increasingly blurred. This leads to specific challenges in the extraction and analysis of online social media data, and the management of new communication.
Prerequisite(s)/Corequisite(s): Open to all currently-admitted doctoral students. Students should have a technical aptitude; experience with at least one web scripting language, (e.g. PHP, rails, python etc) is helpful. Experience with JSON is advantageous but not essential.