INTERDISCIPLINARY INFORMATICS (Si2)

The mission of the School of Interdisciplinary Informatics (Si2) is to provide students and faculty the opportunity to pursue their passions, to use technology in all its facets, and to be transformative. We collaborate to deliver individualized education, world-class research, and immersive experiences to create and harmonize knowledge from multiple disciplines.

The School of Interdisciplinary Informatics is a key driver in taking the College of Information Science & Technology (IS&T) to the next level. The School is a hub for technology innovation for undergraduate and graduate students. It provides opportunities for collaboration with other disciplines through sharing curriculum and collaborative applied research.

The School is also an "IT solution-finding" resource for our community partners in the areas of cybersecurity, healthcare, bioinformatics, public health informatics, business, and government.

The School provides a unique opportunity for undergraduate students to integrate education, research, and outreach into their college experience. For example, many students have been involved in a public health informatics project that focuses on providing an emergency response system for public health laboratories. Students are able to earn academic credit working on this project and also have opportunities to do research and publish papers.

Faculty also engage students with community partners through our service learning initiatives. Students have worked with the Douglas County Correctional Center, KIDS Can! Alegent Health, Douglas County Health Services, and Nebraska Family and Children Services, to name a few.

These initiatives are a win/win situation for everyone involved: the students, the community partners, and the schools. Ultimately, they have a positive economic impact that flows throughout the community and the state.

The School of Interdisciplinary Informatics reflects the role and mission of UNO's College of Information Science & Technology, The Peter Kiewit Institute, and the University of Nebraska at Omaha in a number of ways. It is a direct response to the opportunities and challenges presented by information technology as it relates to economic growth for the state and region in applied IT areas such as medical informatics and cybersecurity. The School encourages the enhancement and fostering of new educational, research and creative activities by bringing together practitioners, researchers and students in interdisciplinary fields of importance to the state and the University. The School is unique in the country and leads to increased national visibility of the University of Nebraska in the area of interdisciplinary applications of information technology.

The School of Interdisciplinary Informatics addresses the following needs and demands of our academic, business, and community stakeholders:

1. Promotion of growth of interdisciplinary areas;
2. Facilitation of innovative partnerships with external constituents, including leveraging the expertise of the local community;
3. Diversity of personnel;
4. Reduction of barriers to collaboration;
5. Flexible and agile structure for quick response to opportunities;
6. Solidification of regional and national recognition as an important resource for the study and advancement of IT in the domain of healthcare, biosciences, and information security;
7. Visibility of the college and its interdisciplinary focus;
8. A magnet for collaborative external funding;
9. Development of the next generation workforce to address local, regional and national needs in exciting, new interdisciplinary domains.

Second Baccalaureate Degree for Bioinformatics

General Requirements
Students who have satisfied the requirements for a first baccalaureate degree other than Bioinformatics at the University of Nebraska at Omaha must complete a minimum of 30 additional semester hours at the University for a second baccalaureate degree.

Bioinformatics Requirements (89 hours)
To obtain Bioinformatics as a second bachelor’s degree, students must complete academic requirements for the degree which include 24 credit hours of IS&T core courses, 11 credit hours of Math courses, 16 credit hours of Biology courses, 14 credit hours of Chemistry courses, and 24 credit hours of Bioinformatics courses. Students must consult an academic advisor in the College of IS&T prior to starting this program. Some transfer coursework may apply; however, 30 of the last 36 hours for the degree must be University of Nebraska at Omaha courses.

Second Baccalaureate Degree for Cybersecurity

General Requirements
Students who have satisfied the requirements for a first baccalaureate degree other than Cybersecurity at the University of Nebraska at Omaha must complete a minimum of 30 additional semester hours at the University for a second baccalaureate degree.

Cybersecurity Requirements (83 hours)
To obtain Cybersecurity (CYBR) as a second bachelor’s degree, students must complete academic requirements for the degree, which include 9 credit hours of IS&T core courses, 21 credit hours of required Computer Science core courses, 30 credit hours of required Cybersecurity core courses, and 8 hours of Mathematics courses. Students must also complete 15 credit hours of required Cybersecurity electives. Students must consult an academic advisor in the College of IS&T prior to starting this program. Some transfer coursework may apply; however, 30 of the last 36 hours for the degree must be University of Nebraska at Omaha courses.

Second Baccalaureate Degree for IT Innovation

General Requirements
Students who have satisfied the requirements for a first baccalaureate degree other than IT Innovation (ITIN) at the University of Nebraska at Omaha must complete a minimum of 30 additional semester hours at the University for a second baccalaureate degree.

IT Innovation Requirements (87 hours)
To obtain IT Innovation as a second Bachelor’s degree, students must complete academic requirements for the degree which include 6 credit hours of Mathematics courses, 48 credit hours of required IS&T core courses, and 33 credit hours of area of emphasis courses. (Approval of the area of emphasis courses by the ITIN Undergraduate Program Committee is required prior to course enrollment.) Students must consult an academic advisor in the College of IS&T prior to starting this program. Some transfer coursework may apply; however, 30 of the last 36 hours for the degree must be University of Nebraska at Omaha courses.

Opportunities for Graduate Study

Integrated Undergraduate/Graduate Tracks (IUG) in Cybersecurity and IT Innovation
The College of IS&T’s School of Interdisciplinary Informatics offers IUG tracks for the Cybersecurity and IT Innovation programs. Students majoring in Cybersecurity can complete the undergraduate BS degree in CYBR and the graduate MS degree in CYBR in five years. Students pursuing
undergraduate degrees in MIS or CS with an Information Assurance concentration may also be eligible for this track option.

The College of IS&T has partnered with the University of Nebraska Medical Center’s College of Public Health to enable ITIN majors to complete the BS in ITIN and an MS in Public Health with a concentration in Biostatistics in five years.

Integrated Undergraduate/Graduate Track (IUG) in Cybersecurity

The primary purpose of this program is to provide outstanding undergraduate students in the College of IS&T an opportunity to complete a BS and an MS degree in Cybersecurity in five years (141 hours). The IUG program is designed for dedicated students who are motivated and willing to take on the challenges relating to graduate studies early; the program involves both intensive study and preparation in the CYBR field.

General Guidelines

IUG in Cybersecurity Program of Study

The CYBR IUG track is a 141-hour undergraduate-graduate option that allows eligible students to work toward the MS in CYBR degree requirements while completing their undergraduate degree. Students interested in this option will work closely with an academic advisor in the College of IS&T and a faculty mentor to develop an integrated plan of study.

Time of Admission to the Program

Students will be eligible for admission to the integrated degree program when they have completed their junior year in the College of IS&T; they can apply for consideration in the last part of their junior year. Students admitted to the program will start taking graduate courses in their senior year and are allowed to use a maximum of 12 hours of CYBR/CSCI/CIST 8xx6 courses toward the undergraduate degree.

Joint Admission

Students must apply to and meet the admission requirements of the graduate degree in Cybersecurity.

Plan of Study

In consultation with an academic advisor and a faculty mentor, students will be required to prepare a plan of study. The plan of study will cover the entire time period of the program and will be periodically reviewed with an advisor. Students admitted to the integrated degree program will be required to complete any applicable graduate foundation courses or their equivalent undergraduate courses during their junior/senior years.

Tuition Charges

Students will be required to pay graduate tuition rates when taking graduate courses.

Admission Requirements and Procedures

1. Students with junior standing and at least 85 hours of completed coursework in their undergraduate degree program may apply for admission consideration into the integrated undergraduate/graduate (IUG) track. Students pursuing undergraduate degrees in CYBR are automatically eligible to apply. Students pursuing undergraduate degrees in MIS or Computer Science (CS) with an IA concentration may also be eligible for this track option and can apply to the CYBR GPC for permission to apply.

2. At the time of application, students must have a GPA of 3.0 or above overall as well as in their major coursework.

3. Interested students will be required to present a portfolio of the following credentials, and whenever possible, this presentation will be made to the IUG Selection Committee. The portfolio is to include the following:
   a. Three letters of recommendation, at least two from faculty
   b. Statement of Intent: a personal statement about why the student wishes to apply for the IUG track
   c. Undergraduate transcripts
   d. Other supporting documents (e.g. resume, projects and papers, software, work experience, etc.) should be included where possible

4. All applicants will need to meet any other admission requirements established for the MS in CYBR program.

Additional Information

• The application to the IUG track will be considered as a complete package, and therefore, obtaining a high undergraduate GPA and/or a high GMAT/GRE score is not a guarantee of admission.

• Students are highly encouraged to identify and work with a faculty mentor who knows their background and can champion their application to the IUG track.

• Students are allowed to use a maximum of 12 hours of CYBR/CSCI/CIST 8xx6 courses towards the undergraduate degree.

Integrated Undergraduate/Graduate Track (IUG) in IT Innovation

The IUG in IT Innovation from UNO and the Master of Public Health (MPH) with a concentration in Biostatistics from the University of Nebraska Medical Center (UNMC) can be completed in five years. This IUG track is a 144-hour undergraduate-graduate option that allows eligible students to work toward the MPH degree requirements while completing their undergraduate degree in IT Innovation. Students interested in this option will work closely with an academic advisor in the College of IS&T and a faculty mentor to develop an integrated plan of study.

General Guidelines

Time of Admission to the Program

Students will be eligible for admission to the integrated degree program during their sophomore year in the College of IS&T and can apply for consideration after completing at least 48 hours of coursework in their undergraduate degree. Students admitted to the program will start taking graduate courses in their junior year and are allowed to use up to 21 credit hours of graduate courses toward the ITIN undergraduate degree’s area of focus.

Joint Admission

Students must apply to and meet admission requirements of the MPH graduate program.

Plan of Study

In consultation with an academic advisor and a faculty mentor, students will be required to prepare a plan of study. The plan will cover the entire time period of the program and will be periodically reviewed with an advisor.

Tuition Charges

Students will be required to pay graduate tuition rates when taking graduate courses.

MPH Program Requirements for Admission

• Completion of the UNMC MPH degree application.

• Three letters of the recommendation from academic or professional references.

• A resume reflecting one or more years of work/volunteer history related to health and/or human services.

• A one page personal statement describing the applicant’s career objectives and interest in and potential for contributing to the field of public health.

• Self-assessment of the applicant’s computer, quantitative analysis, personal skills and general preparation for succeeding in a program of professional studies in public health.
The three degrees above all have three very important common characteristics:

- Official transcripts with a 3.5 or higher grade point average for a minimum of 48 completed undergraduate hours.

**Bioinformatics Concentration Prerequisites**
- The student must have received the equivalent of at least a B (3.00 or higher on the University of Nebraska grade scale) in a statistics course taken within 5 years of the program application.
- The student must have taken differential and integral calculus as well as linear algebra within 10 years of the program application and received at least a B (3.00 or higher on the University of Nebraska grade scale) for each class.
- The GRE will be waived for students in the Integrated Undergraduate/Graduate Track in IT Innovation and MPH with a concentration in Biostatistics.
- All applicants will need to meet any other admission requirements established for the MPH.

**Additional Information**
- The application to the IUG track will be considered as a complete package, and therefore, obtaining a high undergraduate GPA is not a guarantee of admission.
- Students are highly encouraged to identify and work with a faculty mentor who knows their background and can champion their application to the IUG track.
- The number of students admitted to the MPH program is limited to the number that can best be served to the advantage of the students and program operations. Preference is given to residents of Nebraska, to individuals who wish to pursue study that can be adequately supported by MPH program resources, and to those who have adequate preparation and time for their proposed program. The program is projected to admit up to ten students each year.
- Upon acceptance to the Integrated Undergraduate/Graduate Track in IT Innovation and Master of Public Health with a concentration in Biostatistics, students’ advising will be done collaboratively by an advisor from the UNMC College of Public Health and an advisor from the UNO College of Information Science & Technology.

**Contact**
For more information, contact the College of IS&T Academic Advising Office at 402.554.3819.

**Website** (http://www.unomaha.edu/college-of-information-science-and-technology/school-of-interdisciplinary-informatics)

**Writing in the Discipline**
All UNO students are required to take a writing-in-the-discipline course within their major. Students must take CIST 3000.

**Degrees Offered**
The three degrees offered by the School are:

- Bioinformatics, Bachelor of Science (http://catalog.unomaha.edu/undergraduate/college-information-science-technology/school-interdisciplinary-informatics-si2/bioinformatics-bs)
- Cybersecurity, Bachelor of Science (http://catalog.unomaha.edu/undergraduate/college-information-science-technology/school-interdisciplinary-informatics-si2/cybersecurity-bs)
- Information Technology (IT) Innovation, Bachelor of Science (http://catalog.unomaha.edu/undergraduate/college-information-science-technology/school-interdisciplinary-informatics-si2/information-technology-it-innovation-bs)

The three degrees above all have three very important common characteristics:

First, they each have interdisciplinary components in their curriculum.

Second, they rely on working collaboratively with other disciplines and the community.

Third, according to the Bureau of Labor Statistics, all of these career areas have tremendous growth potential over the next ten years.

**Minors Offered**

- IT Innovation Minor (http://catalog.unomaha.edu/undergraduate/college-information-science-technology/school-interdisciplinary-informatics-si2/itin-minor)
- Cybersecurity Minor (http://catalog.unomaha.edu/undergraduate/college-information-science-technology/school-interdisciplinary-informatics-si2/cybersecurity-minor)
- Bioinformatics Minor (http://catalog.unomaha.edu/undergraduate/college-information-science-technology/school-interdisciplinary-informatics-si2/bioinformatic-minor)

**IT Innovation (ITIN) Minor**
The objective of the IT innovation (ITIN) minor is to provide students across the university with a substantive qualification in information technology to augment their respective majors and allow them to be even more innovative as to the application of IT to their learning and career choices.

**Cybersecurity (CYBR) Minor**
Cybersecurity is the practice of managing information-related risks by ensuring confidentiality, integrity, and availability of information. The minor will provide students across the University with an opportunity to earn credits in CYBR, and it will enable them to understand the nuances of everyday cybersecurity issues. The CYBR minor will also provide students an opportunity to strengthen their portfolio, resulting in increased job opportunities.

**Bioinformatics Minor**
Bioinformatics is a rapidly expanding interdisciplinary field focused on collecting, processing, and analyzing vast amounts of biological and biomedical data and has become an indispensable component of biomedical research. The minor in Bioinformatics offers an opportunity for students majoring in other disciplines to acquire the foundations of the field and add in-demand skills to their portfolio.