ARTIFICIAL INTELLIGENCE, MS

The vision of the MS in artificial intelligence graduate program is to cultivate an innovative research and teaching ecosystem that advances computational and AI-driven solutions, empowering society to address complex challenges in an era of rapid technological transformation.

Program Related Information

Program Contact

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

Fast Track

The Department of Computer Science 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 nine graduate credit hours towards 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.
- Students must have a minimum undergraduate GPA of 3.0.
- Students must complete the Fast Track Approval form and obtain all signatures and submit 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 for graduate coursework 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 (https://catalog.unomaha.edu/graduate/admission/)

Program-Specific Requirements

Application Deadlines

Applicants are strongly encouraged to apply as early as possible, especially if applying for assistantships or scholarships. Some scholarships may have earlier deadlines or run out of funding.

- Spring 2027:
  - October 1 for international applicants who are required to secure a new student visa
  - November 1 for all other applicants
- Summer 2027:
  - March 1 for international applicants who are required to secure a new student visa
  - March 15 for all other applicants
- Fall 2027:
  - May 1 for international applicants who are required to secure a new student visa
  - July 1 for all other applicants

Other Requirements

- The minimum undergraduate grade point average (GPA) requirement for the MS in artificial intelligence program is 3.0 or equivalent score on a 4.0 scale. Applicants should have the equivalent of a four-year undergraduate degree.
- **Entrance Exam:** The Graduate Record Exam (GRE) is not required.
- **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 United States, **OR** a baccalaureate or other advanced degree from a predetermined country on the waiver list (https://www.unomaha.edu/office-of-graduate-studies/admissions/entrance-exams.php), must meet the minimum language proficiency score requirement in order to be considered for admission.
  - Internet-based TOEFL: 80, IELTS: 6.5, PTE: 53, Duolingo: 110
- **Resume:** Submit a detailed resume indicating your work experience and background.
- OPTIONAL: One letter of recommendation from a reference who can evaluate your work and/or academic achievements.
- OPTIONAL: Application for Graduate Assistant Position
  - If interested in applying for Graduate Assistant (GA) positions, please submit a letter stating your research area interests and why you feel you would make a good GA. Please note that GA positions will be considered after admission and program admission is not a guarantee of receiving a GA position.

Degree Requirements

A total of 30 credit hours is required for a MS AI degree. At least 15 credit hours must consist of graduate only 8xx0 coursework. Coursework must meet the distribution requirements shown below:

Code	Title	Credits
Core Courses		
CSCI 8456	PRINCIPLES OF ARTIFICIAL INTELLIGENCE [1]	3
CSCI 8110	ADVANCED TOPICS IN ARTIFICIAL INTELLIGENCE	3
CSCI 8450	ADVANCED TOPICS IN NATURAL LANGUAGE UNDERSTANDING	3
Required Concentration - Select a Concentration		**12**

Exit Option - Select One Path		**6**
Thesis Option - Complete 6 hours of thesis credit distributed over at least two terms		
AIML 8990	THESIS	
Project Option - Complete 6 hours of project credit distributed over at least two terms		
AIML 8960	THESIS EQUIVALENT PROJECT IN ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING	
Capstone Option - Complete 3 hours of capstone and 3 hours of additional electives		
AIML 8910	MASTER OF SCIENCE CAPSTONE	
Additional elective coursework		**3-6**
AIML 8xxx	Any AIML graduate courses may be used as electives if not applied elsewhere in the plan of study (excluding project and thesis)	
CSCI 8xxx	Any CSCI graduate courses may be used as electives if not applied elsewhere in the plan of study.	
BMI 8400	LINEAR ALGEBRA FOR ADVANCED COMPUTING AND AI	
CYBR 8080	SPECIAL TOPICS IN CYBERSECURITY	
CYBR 8410	NETWORK SECURITY	
ISQA 8016	BUSINESS INTELLIGENCE	
ISQA 8736	DECISION SUPPORT SYSTEMS	
ISQA 8030	FOUNDATIONS OF INFORMATION SYSTEMS [2]	
Total Hours Required		**30**

[1] Students who have taken CSCI 4450 or CSCI 8456 with a grade of "B-" or better before entering the MSAI program can replace this course with an elective course of 3 credit hours.

[2] ISQA 8030 may be used to meet elective credit requirements in the MS AI program with permission of both the AI and MIS graduate program committees.

Concentrations

Data Analytics Concentration

Code	Title	Credits
Required Course		
CSCI 8590	FUNDAMENTALS OF DEEP LEARNING	3
Complete 9 additional hours from the following.		**9**
ECON 8310	BUSINESS FORECASTING	
ECON 8316	BUSINESS INTELLIGENCE AND REPORTING	
ECON 8330	DATA ANALYSIS FROM SCRATCH	
CSCI 8080	DESIGN AND ANALYSIS OF ALGORITHMS	
CSCI 8350	DATA WAREHOUSING AND DATA MINING	
AIML 8970	INDEPENDENT STUDY	
ISQA 8156	ADVANCED STATISTICAL METHODS FOR IS&T	
ISQA 8700	DATA MINING: THEORY AND PRACTICE	
STAT 8416	INTRODUCTION TO DATA SCIENCE	
STAT 8426	EXPLORATORY DATA VISUALIZATION AND QUANTIFICATION	
Total Credits		**12**

Computer Vision Concentration

Code	Title	Credits
Required Course		
CSCI 8300	IMAGE PROCESSING AND COMPUTER VISION	3
Complete 9 additional hours from the following.		**9**
CSCI 8050	ALGORITHMIC GRAPH THEORY	
CSCI 8080	DESIGN AND ANALYSIS OF ALGORITHMS	
CSCI 8476	PATTERN RECOGNITION	
CSCI 8590	FUNDAMENTALS OF DEEP LEARNING	
AIML 8970	INDEPENDENT STUDY	
ISQA 8720	APPLIED STATISTICAL MACHINE LEARNING	
Total Credits		**12**

Fundamentals of AI Concentration

Code	Title	Credits
Required Course		
CSCI 8080	DESIGN AND ANALYSIS OF ALGORITHMS	3
Complete 9 additional hours from the following.		**9**
CSCI 8050	ALGORITHMIC GRAPH THEORY	
CSCI 8590	FUNDAMENTALS OF DEEP LEARNING	
CSCI 8666	AUTOMATA, COMPUTABILITY, AND FORMAL LANGUAGES	
AIML 8970	INDEPENDENT STUDY	
ISQA 8156	ADVANCED STATISTICAL METHODS FOR IS&T	
ISQA 8700	DATA MINING: THEORY AND PRACTICE	
Total Credits		**12**

Machine Learning Concentration

Code	Title	Credits
Required Course		
CSCI 8590	FUNDAMENTALS OF DEEP LEARNING	3
Complete 9 additional hours from the following.		**9**
CSCI 8080	DESIGN AND ANALYSIS OF ALGORITHMS	
CSCI 8360	MACHINE LEARNING FOR TEXT	
CSCI 8476	PATTERN RECOGNITION	
AIML 8970	INDEPENDENT STUDY	
MATH 8456	INTRODUCTION TO MACHINE LEARNING AND DATA MINING	
Total Credits		**12**

Natural Language Understanding Concentration

Code	Title	Credits
Required Course		
CSCI 8360	MACHINE LEARNING FOR TEXT	3
Complete 9 hours from the following.		
CSCI 8080	DESIGN AND ANALYSIS OF ALGORITHMS	
CSCI 8590	FUNDAMENTALS OF DEEP LEARNING	
CSCI 8666	AUTOMATA, COMPUTABILITY, AND FORMAL LANGUAGES	

AIML 8950	GRADUATE INTERNSHIP IN ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING	
AIML 8970	INDEPENDENT STUDY	
MATH 8456	INTRODUCTION TO MACHINE LEARNING AND DATA MINING	
CSCI 8476	PATTERN RECOGNITION	
Total Credits		**3**

Robotics Concentration

Code	Title	Credits
Required Course		
CSCI 8460	FUNDAMENTALS OF ROBOTICS	3
Complete 9 hours from the following.		**9**
CSCI 8050	ALGORITHMIC GRAPH THEORY	
CSCI 8080	DESIGN AND ANALYSIS OF ALGORITHMS	
CSCI 8300	IMAGE PROCESSING AND COMPUTER VISION	
CSCI 8480	MULTI-AGENT SYSTEMS AND GAME THEORY	
CSCI 8486	ALGORITHMS FOR ROBOTICS	
AIML 8970	INDEPENDENT STUDY	
STAT 8426	EXPLORATORY DATA VISUALIZATION AND QUANTIFICATION	
Total Credits		**12**