

INFORMATION SYSTEMS, MS ARTIFICIAL INTELLIGENCE SPECIALIZATION

Recent advances in machine learning and artificial intelligence are affecting the work of data scientists and information systems professionals. Traditional artificial intelligence utilized rules-based, knowledge-based systems and logic programming. Today's artificial intelligence relies on machine learning methods and deep learning, in particular. Data science encompasses traditional statistics, operations research, and machine learning methods. Machine learning methods include naïve Bayes models, nearest neighbor models, classification and regression trees, random forests, support vector machines, and neural networks. Machine learning methods are data-adaptive—they learn from data. Advances in artificial intelligence rely on deep learning, which involves neural networks with many hidden layers learning from very large data sets. Artificial intelligence is a special area of study within data science and information systems. It has important applications in computer vision, natural language processing, and robotics.

Curriculum

Core Courses (4 units)

Course	Title
CIS 413-DL	Telecommunications Networks
MSDS 430-DL	Python for Data Analysis
CIS 417-DL	Database Systems Design & Implementation
CIS 498-DL or CIS 590-DL	Information Systems Project Capstone Research

Specialization Courses (7 units)

Course	Title
CIS 435-DL	Practical Data Science Using Machine Learning
MSDS 453-DL	Natural Language Processing
MSDS 458-DL	Artificial Intelligence and Deep Learning
MSDS 462-DL	Computer Vision
MSDS 464-DL	Intelligent Systems and Robotics
Any two electives	
CIS 419-DL	Web Application Development
CIS 431-DL	Database Administration
CIS 436-DL	Big Data Management and Analytics
CIS 452-DL	Fundamentals of Network Security
CIS 453-DL	Advanced Cyber Security
CIS 455-DL	Disaster Recovery and Continuity
CIS 457-DL	Management of Information Security
CIS 459-DL	Innovation with Blockchain Technology
CIS 460-DL	Information Technology Management
CIS 465-DL	Information Technology Strategy
CIS 494-DL	Project Management Concepts
CIS 495-DL	IT Project Management
CIS 496-DL	Information Technology Business Writing and Communication

About the Final Project

Students may pursue their capstone experience independently or as part of a team. As their final course, students take either the individual

research project in an independent study format or the classroom final project class in which students integrate the knowledge they have gained in the core curriculum in a project presented by the instructor. In both cases, students are guided by faculty in exploring the body of knowledge on information systems while contributing research of practical value to the field. The capstone independent project and capstone class project count as one unit of credit.

Course	Title
Choose one	
CIS 498-DL	Information Systems Project
CIS 590-DL	Capstone Research