

DATA SCIENCE - MASTER OF SCIENCE

Online (Code 181-801)

The multidisciplinary field of data science is one of the fastest growing professions and academic disciplines in the 21st century. The curriculum of this fully online, professional degree program focuses primarily on working adults and nontraditional students who desire to continue their education, primarily to expand their knowledge and specialized skills in this area for career advancement.

The program prepares the student to derive insights from real-world datasets—both structured and unstructured—using the latest data science tools and analytical methods, and to interpret and communicate data science findings effectively. It features a multidisciplinary curriculum that draws primarily from computer science, mathematics and statistics, management, and communication.

Graduates will leave the program with expertise in a number of specialized areas, including: data mining and warehousing, predictive analytics, statistical modeling, database infrastructures and data management, machine learning, and analytics-based decision making.

Requirements for Admission to the Master of Science in Data Science Program:

1. A bachelor's degree from a regionally accredited college or university;
2. An undergraduate course in elementary statistics;
3. Either undergraduate coursework or prior work experience providing a foundational understanding of both programming concepts and databases.

This program consists of a fixed curriculum comprising 36 online credits that include a required capstone course, which represents the culminating experience.

Code	Title	Credits
The 12 three-credit graduate courses required for the program include:		36
DS 700	Foundations of Data Science	
DS 705	Statistical Methods	
DS 710	Programming for Data Science	
DS 715	Data Warehousing	
DS 730	Big Data: High Performance Computing	
DS 735	Communicating about Data	
DS 740	Data Mining & Machine Learning	
DS 745	Visualization and Unstructured Data Analysis	
DS 760	Ethics of Data Science	
DS 775 or DS 776	Prescriptive Analytics Deep Learning	
DS 780	Data Science and Strategic Decision Making	
DS 785	Data Science Capstone	

Program Learning Outcomes

Students completing this program will be expected to meet the following learning outcomes:

- Collect, prepare, store and manage data to devise solutions to data science tasks.
- Manage and use data in various forms, from traditional databases to big data.
- Determine the conditions for when a predictive and prescriptive model is applicable.
- Design and implement algorithms to translate data into actionable insights.
- Create, write, and orally communicate technical materials for diverse audiences
- Help technical and non-technical professionals visualize, explore, interpret, and act on data science findings.
- Identify and utilize data assets to enhance organizational effectiveness.
- Identify and analyze ethical issues in data science and apply a professional code of conduct.