

Fall 2026

Registration Opens: April 13, 2026

Course Preview Week: September 01 - September 07, 2026

Semester Dates: September 08 - December 18, 2026

DS 701: Exploratory Data Analysis

**3
Credits**

This course introduces data science and highlights its importance in decision making. Students will learn how to analyze data using the R programming language. During the course, students will learn how to import data into R, tidy it, conduct exploratory data analysis, develop visualizations, and draw statistical inferences. The course aims to teach data wrangling, visualization and exploration with R.

[DS701 Course Syllabus](#)

DS 705: Statistical Methods

**3
Credits**

This course will present statistical methods and inference procedures with an emphasis on applications, computer implementation, and interpretation of results. Familiarity with the R programming language is highly recommended. Topics include simple and multiple regression, model selection, correlation, moderation/interaction analysis, logistic regression, the chi-square test, the Kruskal-Wallis test, analysis of variance (ANOVA), multivariate analysis of variance (MANOVA), factor analysis, and canonical correlation analysis.

Prerequisite: DS 700 or 701.

[DS 705 Course Syllabus](#)

DS 710: Programming for Data Science

**3
Credits**

Computer programming is an essential part of data science. When working with large data sets, it's especially important to be able to write effective, efficient code to help you organize and understand the data. In this course, we'll introduce you to one of the most widely-used programming languages for data science: Python. You'll gain experience working with real-world data, and leave the course with skills you can apply in other courses in the MS Data Science Program as well as on the job!

[DS 710 Syllabus](#)

DS 716: Data Management for Data Science

**3
Credits**

This course explores the various approaches for data management used in data science. We present how data is collected, transformed, stored, and delivered for use in data science projects.

DS 730: Big Data: High-Performance Computing

**3
Credits**

This course prepares you to process large data sets efficiently. You will be introduced to nonrelational databases and algorithms that allow for the distributed processing of large data sets across clusters.

Prerequisite: DS 710

[DS 730 Syllabus](#)

DS 740: Data Mining & Machine Learning**3
Credits**

Explore data mining methods and procedures for diagnostic and predictive analytics. Topics include association rules, clustering algorithms, tools for classification, and ensemble methods. Computer implementation and applications will be emphasized.

Prerequisites: DS 705 and DS 710.

[DS 740 Syllabus](#)

DS 770: Ethical Decision-Making Using Data**3
Credits**

This course examines how data science relates to developing strategies for organizations. The emphasis is on using an organization's data assets to inform better decisions. The course investigates the use of data science findings to develop solutions to competitive organizational challenges. Special attention is given to critically examining decisions to ensure that they are ethical and avoid unfair bias. Professional codes of conduct as well as local and international regulations are also considered.

Prerequisites: DS 740 suggested but not required.

[DS770 Course Syllabus](#)

DS 785: Capstone**3
Credits**

Students will develop and execute a data science project using real-world data and communicate results to non-technical audiences.

Prerequisites: DS715 or DS716, DS730, DS740, DS750 or completion of 27 credits.

[Sample Capstone Projects](#)

[DS 785 Syllabus](#)