

# DATA SCIENCE (DS)

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## **DS 210 Data Science I: Foundations** **3 Credit hours**

An overview of data science, covering a broad selection of key topics and methodologies for working with data, including collection, management, modeling, analysis and visualization.

**Pre-req:** CS 110 with a minimum grade of C.

**Grade Mode:** Normal Grading Mode

## **DS 310 Data Science II: Toolkit** **3 Credit hours**

Introduction to data science tools and techniques.

**Pre-req:** CS 110 with a minimum grade of C.

**Grade Mode:** Normal Grading Mode

## **DS 430 Data Visualization & Analytics** **3 Credit hours**

This course introduces students to the fundamentals of data visualization and analytics. Information visualization goes beyond presenting the data to help understanding and analyze the data. Students will be introduced to different visualization and analytics techniques.

**Pre-req:** DS 310 with a minimum grade of C.

**Grade Mode:** Normal Grading Mode

## **DS 450 Machine Learning** **3 Credit hours**

This course provides an overview of basic concepts and techniques related to machine learning. Topics include supervised and unsupervised learning techniques, kernel smoothing methods, principal component analysis, clustering, high dimensional data problems, random forests, neural networks, and support vector machines.

**Pre-req:** DS 310 with a minimum grade of C.

**Grade Mode:** Normal Grading Mode

## **DS 470 Big Data Analytics** **3 Credit hours**

Exploration of leading research in Big Data stored in Large Repositories, discusses challenges with mining such repositories, and covers Big Data Systems such as Map Reduce, Hadoop, HDFS, and Spark.

**Pre-req:** DS 310 with a minimum grade of C and (CS 410 with a minimum grade of C or DS 450 with a minimum grade of C).

**Grade Mode:** Normal Grading Mode

## **DS 491 Senior Seminar** **2 Credit hours**

Capstone experience in the methodologies, analyses, and applications of data science. Students will explore topics related to a theme chosen or approved by the instructor.

**Pre-req:** DS 310 with a minimum grade of C.

**Grade Mode:** Normal Grading Mode