

DATA SCIENCE (DATA)

DATA 100 Introduction to Data Science Credits: 3

An introductory overview of the tools and techniques for extracting knowledge from data. Topics to be covered include Python basics, visualization, sampling, hypothesis testing, estimation, prediction, certainty assessment, and informed decision making. The necessary preparation is three years of high-school mathematics including algebra 2.

Goal: Goal: 04- Mathematical/Logical Reasoning

Fall: All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00204337/>)

DATA 250 Computational Data Science Credits: 3

An intermediate course combining data, computation, and inferential thinking. Topics to be covered include data collection and cleaning, visualization, statistical inference, predictive modeling, and distributed computing.

Pre-Requisite : DATA 100 AND COMP 165

Fall: All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00204396/>)

DATA 435 Predictive Analytics & Modeling Credits: 3

This course extends the ideas of linear models to data sets used in professional settings. Topics includes linear and non-linear regression, logistic regression, discriminant analysis, principle component analysis, cross validation, and related topics. This course will use appropriate statistical software.

Pre-Requisite : MATH 202 AND MATH 430

Fall: Department Discretion **Spring:** Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00204379/>)

DATA 468 Big Data Analytics Credits: 3

This course covers methodologies and algorithms to transform big data into meaningful insights. Topics include Hadoop Ecosystem, Hadoop MapReduce, MongoDB, Spark basics, SparkSQL and hands on real world applications.

Pre-Requisite : MATH 200 AND COMP 368 AND DATA 250 OR COMP 166

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00204380/>)

DATA 486 Special Topics in Data Science Credits: 1-4

A study of data science topics not ordinarily covered in the established courses. Prerequisite: consent of Data Science faculty.

Fall: Department Discretion **Spring:** Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00205616/>)

DATA 494 Independent Study Credits: 1-3

An independent study of a data science topic not covered elsewhere.

Fall: Department Discretion **Spring:** Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00205617/>)

DATA 495 Senior Capstone Credits: 2

Students will design, develop, implement, and effectively communicate an original data science project.

Pre-Requisite : DATA 250 AND COMP 368 and senior status.

Fall: All Years **Spring:** All Years

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00206296/>)

DATA 499 Internship in Data Science Credits: 1-12

On-the-job supervised experience and study dealing with applications of data science.

Fall: Department Discretion **Spring:** Department Discretion **Summer** Department Discretion

Course Outline (<https://eservices.minnstate.edu/registration/rest/rcld/0075/curricld/00205636/>)