DATA SCIENCE

Program Director: Catherine Baker, Ph.D.

Data Science is the science of planning for, acquiring, managing, analyzing, modeling, and drawing inferences from data. Data scientists use statistical and computing skills to gain meaningful insights from big data. Students will explore the practical and theoretical foundations for interacting with data throughout its lifecycle: from data collection and storage through to data modeling and analysis. Data Science will develop computational and algorithmic problem-solving skills for interacting with data, apply statistical inference and modeling techniques to analyze large data sets, and use mathematical and computing tools to develop and evaluate new approaches for data modeling. Data Science majors will be able to communicate with both data consumers and data producers through written, oral, and visual techniques, and explore the ethical and professional issues surrounding the data revolution.

Major in Data Science (http://catalog.creighton.edu/undergraduate/arts-sciences/data-science/data-science-major/)

Data Science minor (http://catalog.creighton.edu/undergraduate/arts-sciences/data-science/data-science-minor/)

Courses

DSC 365. Introduction to Data Science. 3 credits.
Intro to statistical data science, using computing tools to gather, manage and analyze large and complex data sets. Topics include data wrangling and formatting, web scraping, data analysis, statistical modeling techniques, text mining and language processing. Satisfies Magis Core Designated Technology. P: Mathematical Reasoning; CSC 121 or CSC 221 or MTH 360 or MTH 361.

DSC 366. Machine Learning. 3 credits.
Introduction to machine and statistical learning techniques. Topics include supervised learning (regression models, kernel smoothers), unsupervised learning (clustering or principal component analysis), shrinkage models, additive models, and neural networks. P: MTH 360 or MTH 361 or another introductory statistics course with Instructor Consent; DSC 365.

DSC 599. Data Science Senior Capstone. 3 credits.
This project based capstone is intended for data science seniors. Students will complete a semester-long project that draws on the skills learned in all three cores of the major. Students will also learn about data ethics, interacting with big data, and develop the professional skills necessary for data scientists. Satisfies Magis Designation: Ethics, Oral Communication, Written Communication. P: Ethics, Oral Communication, Contemporary Compositions, Sr. standing, Data Science Major.