Data Science

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Undergraduate major: data science (B.S.)
Graduate degree: M.S. in data science
Website: https://stat.uiowa.edu

The B.S. in data science produces graduates with the sophisticated analytical and computational skills required to thrive in a quantitative world where new problems are encountered at an ever-increasing rate. The major emphasizes the statistical/probabilistic and algorithmic methods that underlie the preparation, analysis, and communication of complex data. With focus on technical foundations, the data science program promotes skills useful for creating and implementing new or special-purpose analysis and visualization tools. It also promotes a fundamental understanding of how to best handle uncertainty when making data-driven decisions.

The M.S. in data science trains the next generation of data scientists who have the analytical and technical skills to explore, formulate, and solve complex data-driven problems in science, industry, business, and government. The program focuses on the theory, methodology, application, and ethics for working with and learning from data. With an emphasis on statistical thinking and foundations, the program rigorously prepares its graduates with the abilities to develop and implement new or special purpose analysis and visualization tools. It promotes a fundamental understanding of how to quantify uncertainty in data-driven decision-making.

Students develop data preparation skills including writing software to obtain, extract, merge, clean, and/or transform the raw data. Analysis or information extraction methods include machine and statistical learning, statistical modeling and inference, and algorithm efficiency analysis. Data visualization, report writing, and oral presentations are important communication methods. The major includes two capstone courses that emphasize communication, ethics, and teamwork.

The B.S. and M.S. in data science are administered by the Department of Statistics and Actuarial Science.