# Data Science, MS

## Learning Outcomes

Graduates will be able to:

- understand the fundamental concepts in probability and statistics that underlie commonly used data science algorithms;
- write efficient Python and R codes for data processing and data wrangling (data storage, access, and management) and computing for data analysis and modeling;
- use visualization techniques to display salient data features;
- use data technologies to process complex data;
- correctly and effectively implement appropriate algorithms for learning with data;
- identify and criticize inappropriate/unethical uses of data and/or algorithms;
- acquire effective communication skills for disseminating findings; and
- work with data stakeholders to help collect and analyze data.

The program aims to train the next generation of data scientists with 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. Students acquire the ability to develop and implement new or special-purpose analysis and visualization tools, and a fundamental understanding of how to quantify uncertainty in data-driven decision-making.