

# DATA SCIENCE & QUANTITATIVE ECONOMICS (M.S.)

---

## Overview

The economics and computer and information sciences (CIS) departments offer an interdisciplinary M.S. degree program in data science and quantitative economics. This interdisciplinary degree program was developed in response to the increasing importance of computational methods and data analytic skills in the job market.

Students who pursue this degree option gain a deeper understanding of economic theory and computational methods, while engaging in research projects that link data science and economics. This degree entails 10 courses (30 credits) essential to both economic and data science domains, which can be taken sequentially or concurrently as needed.

The benefit of this program is that it allows students to combine powerful theoretical approaches with modern tools to understand complex problems. It prepares students well for careers in data-driven professions by providing strong analytic training with hands-on applications across a variety of fields such as finance, health policy, environmental policy, economic development, family and disability studies, and monetary policy.

---

## Learning Goals

The master's in data science & quantitative economics program enables students to attain, by the time of graduation:

- A background in economic theory through instruction in ECON 6010 Microeconomic Theory I and ECON 6020 Macroeconomic Theory I.
- Updated skills in math and statistics through CISC 5450 Mathematics for Data Science or ECON 5710 Mathematical Analysis in Economics, and through ECON 6910 Applied Econometrics or ECON 6950 Financial Econometrics.
- Advanced technical skills to build and assess computational models and apply data science concepts and methods to economics data through CISC 5790 Data Mining and CISC 5800 Machine Learning.
- An understanding of the theoretical framework of big data processing and hands-on experience in big data analytics and its applications.
- An ability to effectively communicate data science-related information to any audience and transform findings into actionable solutions to real-world problems.