Earn your Master of Data Science and Engineering from a leading research university with top-ranked programs.

The Master of Science in Data Science and Engineering degree entails a minimum of 30 semester graduate credit hours. There are two formal options in the MS-DSE program: the Data Engineering Option administrated by the Department of Computer Science and Software Engineering; and the Data Science Option managed by the Department of Mathematics and Statistics.

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Program Overview

This graduate program prepares students to pursue careers in data science and engineering, where valuable insights are derived from massive amount of raw data. Our high-quality curriculum offers an excellent balance between theory and application, equipping students with skills and state-of-the-art technologies related to the next generation of big data applications.

Students will be able to complete the graduate program in one to two years. This program blends graduate-level courses in core topics like data mining, machine learning, and statistical analyses. The program also offers a wide variety of electives in addition to a capstone engineering project course, in which students apply their knowledge and skills to a real-world application scenario.

Program Outcomes

Outcome 1: Students will demonstrate proficiency in knowledge, skills, and experiences in data science and engineering.

Outcome 2: Students will demonstrate proficiency in processes involved in managing and analyzing massive data sets.

Outcome 3: Students will be able to demonstrate effective oral and written communication skills.

Outcome 4: Students will have a capability to carry out real-world projects by applying core concepts and expert knowledge of data science and engineering while demonstrating the highest standards of ethical conduct.

Admission Requirements

Applicants should have a baccalaureate degree in computer science, software engineering, mathematics, statistics, or an equivalent discipline from an institution of recognized standing. Degrees or significant work experience in information technology, computer engineering, electrical engineering, or other related disciplines may also be suitable. Data-Engineering Option applicants will be evaluated by the graduate committee of the Department of Computer Science and Software Engineering; Data-Science Option applicants will be assessed by the graduate committee of the Department of Mathematics and Statistics.

Program Requirements

This graduate program offers two options: Data Engineering and Data Science. The degree entails a minimum of 30 semester graduate credit hours. The following courses are required:

Foundational Courses: No Credit

COMP Core Courses
- COMP1210 Introduces Fund. of Comp.
- COMP2210 Fund. of Computing II
- COMP3270 Algorithms

STAT Core Courses
- STAT3600/3610 Prob and Stat I and II
- MATH1610/1620 Calculus I and II
- MATH2660 Topics in Linear Algebra

Core Courses: 18 Credit Hours

COMP Core Courses
- COMP6120 Databases
- COMP6130 Data Mining
- COMP6630 Machine Learning

STAT Core Courses
- STAT6000 Int. Stat. Methods for Data Science
- STAT6600 Prob & Stat for Data Science
- STAT6650 Statistical Learning

Elective Courses: 9 Credit Hours

The Data Engineering Option
- COMP6/7000-Level Course 1
- COMP6/7000-Level Course 2

The Data Science Option
- STAT6/7000-Level Course 1
- STAT6/7000-Level Course 2

Capstone Experience: 3 Credit Hours

The Data Engineering Option
- COMP7980 Capstone Engineering Project

The Data Engineering Option
- STAT7940 Capstone Project (i.e., Special Project)