

## Master of Science

# Data Science and Analytics with a Concentration in Engineering and Big Data Analysis (MS)

## Engineering & Big Data Analytics Concentration

The purpose of this concentration is to provide students with a thorough understanding of the methods and technologies to handle big data and to instill engineering problem-solving skills rooted in big data solutions. It will further prepare them to become professionals trained in advanced data analytics, with the ability to transform large streams of multiple data sources into understandable and actionable information for the purpose of making decisions. The coursework (12 credits) will enable students to learn and practice the following competencies: data collection, data storage, processing and analyzing data, reporting statistics and patterns, drawing conclusions and insights and making actionable recommendations.

## Admission

The requirements for admission to the Master of Science in Data Science and Analytics are as follows:

1. A baccalaureate degree in computer science, electrical and/or computer engineering, mathematics, statistics, information system & technology, or a related field from a regionally-accredited institution or an equivalent institution outside the U.S.; students holding a bachelor's degree in an unrelated field will need competency in topics related to basic statistics and computer science.
2. Current scores on the Test of English as a Foreign Language (TOEFL) of at least 230 on the computer-based TOEFL or 79 on the TOEFL iBT, or IELTS 6.5 overall.

Students with previously completed work at a regionally-accredited institution may submit a request for a maximum of 12 elective graduate credit hours to be transferred into the program. If approved by the admission committee, it will be added to the transcript.

## Curriculum Requirements

The program requires 30 credit hours. A capstone project is required.

### Data Science & Analytics Core

#### Core Requirements

DASC/CS 620	Introduction to Data Science and Analytics	3
CS 624	Data Analytics and Big Data	3
CS 625	Data Visualization	3
STAT 603	Probability Models for Data Science and Analytics	3
DASC 605	Advanced Statistical Concepts in Data Science	3
<b>Total Credit Hours for Concentration</b>		<b>12</b>
<b>Capstone Course</b>		<b>3</b>
<b>Total Credit Hours</b>		<b>30</b>

## Engineering & Big Data Analytics Concentration

Select two of the following:

6

DASC 600	Programming for Data Science
ENMA 754	Big Data Fundamentals
MSIM 715	High Performance Computing Simulation and Data Analytics
ECE 607	Machine Learning I

Select two of the following:

6

ECE 784	Computer Vision
MSIM 695	Topics in Modeling and Simulation
MSIM 574	Transportation Data Analytics
MAE 740	Autonomous and Robotic Systems Analysis and Control
CEE 722	Cluster Parallel Computing
ECE 651	Statistical Analysis and Simulation
ECE 780	Machine Learning II

**Total Credit Hours**

**12**