DATA SCIENCE AND ENGINEERING MAJOR (M.S.)

The Master of Science in Data Science and Engineering Program equips students with the hands-on skills, knowledge and competencies required to become data science and analytics professionals. The students learn how to solve data-driven problems with computational technology. During applied engineering projects conducted in the Data Science and Engineering Lab of the program, using engineering principles the students apply machine learning, neural networks, statistical analyses and cloud computing to develop automated machine learning solutions. The students acquire the skills of data science practitioners for data collection, manipulation, processing, analysis, and visualization to support analytics-driven decision making. The program incorporates the latest cloud computing technology, such as AWS, and industrial programming languages, including SQL, Python and R.

Graduates of the program will have

1. An ability to identify, formulate, and solve broadly defined technical or scientific problems by applying knowledge of mathematics and science and/or technical topics to areas relevant to the discipline.
2. An ability to formulate or design a system, process, procedure or program to meet desired needs.
3. An ability to develop and conduct experiments or test hypotheses, analyze and interpret data and use scientific judgment to draw conclusions.
4. An ability to communicate effectively with a range of audiences.
5. An ability to understand ethical and professional responsibilities and the impact of technical and/or scientific solutions in global, economic, environmental, and societal contexts.
6. An ability to function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty

General Admission Requirements

Applicants must submit the following materials (please note that an application will not be reviewed until all required materials have been submitted):

- Completed Graduate Application with Fee
- Résumé
- Personal Statement
- Three Letters of Recommendation
- Transcript(s)
- GRE General Exam Scores (maybe waived according to academic record of candidate, please contact the Director of Graduate Studies to request a waiver)

Admission Requirements for International Applicants

In addition to the general admission requirements for the M.S. in Data Science and Enginering program, international applicants must submit the Test of English as a Foreign Language (TOEFL) **or** International English Language Testing System (IELTS) scores.

Degree Requirements

The curriculum of the in-person M.S. Program in Data Science and Engineering consists of 30 credits (10 courses per 3 credits), including the two-semester 6-credit capstone project course sequence DASC 9321 Data Science Engineering Project 1/ DASC 9322 Data Science Engineering Project 2 taken during the last two semesters.

Regular Track

Code	Title	Hours
Required Courses		
DASC 6010	Data Mining	3
DASC 6811	Statistics for Data Science	3
DASC 7000	Data Visualization	3
DASC 6911	Big Data Analytics	3
DASC 8211	Machine Learning	3
DASC 8222	Data Engineering	3
DASC 9321	Data Science Engineering Project 1	3
DASC 9322	Data Science Engineering Project 2	3
Subtotal:		24
Elective Courses		
Select two:		6
DASC 7111	Text Mining	
DASC 7122		
DASC 7521	Operations Research	
DASC 8011	Intern in Visual Analytics	
DASC 8212	Deep Learning	
DASC 8801	Special Topics in Data Science	
DASC 8802		
DASC 8803	ST - Adv Machine Learning	
PSMA 7800	Ethical Challenges of Big Data	
PSYC 7214	Cognition for Visualization	
Total Hours		**30**

Thesis Track

In the thesis track the capstone project course sequence DASC 9321 Data Science Engineering Project 1/ DASC 9322 Data Science Engineering Project 2 is replaced with the sequence DASC 9412 M.S. Research and DASC 9413 M.S. Thesis.