

Master of Science in Applied Data Science (Earth and Environmental Sciences)

About This Program

The Master of Science in Applied Data Science (Environmental Science) is designed to prepare students to apply modern data science tools to complex problems in environmental science. Students will develop core competencies in programming, statistical analysis, and machine learning, while gaining domain-specific expertise in analyzing earth and environmental data. This track offers a fast-paced path to careers in environmental data science and provides students with skills needed for making critical, data-informed decisions in the context of sustainability, climate, natural resources, and environmental policy.

Competencies

1. Upon completion, students will be able to apply statistical methodologies to real-world data from diverse applications.
2. Upon completion, students will be able to understand computational aspects of big data analytics.
3. Upon completion, students will be able to apply data science methods to Earth and environmental datasets, use Python to analyze large spatial and temporal data, integrate machine learning and statistical modeling to explore environmental processes, evaluate data quality and patterns, and make evidence-based decisions to address environmental challenges and support sustainable management.

Admissions Criteria

All applicants for the Applied Data Science MS must meet UT Arlington's [graduate admission requirements](https://catalog.uta.edu/academicregulations/admissions/graduate/) (<https://catalog.uta.edu/academicregulations/admissions/graduate/>). The program does not consider GRE scores in evaluating candidates for admission.

To be considered for admission, applicants must demonstrate undergraduate preparation equivalent to a baccalaureate degree in natural, physical, or social sciences, technology, engineering, mathematics, business, or related fields. To apply for a specific track, applicants must demonstrate sufficient background in that concentration with a relevant bachelor's degree.

Applicants must submit two letters of recommendation from evaluators who can assess the candidate's potential for academic success.

UNCONDITIONAL ADMISSION

Applicants who demonstrate a GPA of 3.0 and strong support from references will be considered for unconditional admission. Applicants with a GPA of 2.7 or higher (but less than 3.0) who demonstrate relevant work experience and/or certification may be offered unconditional admission upon review.

All admitted students must complete the program's self-paced, non-credit online review, "Math Foundation of Machine Learning," prior to enrolling in classes.

Curriculum

Foundations

ASDS 5301	STATISTICAL THEORY AND APPLICATIONS	3
ASDS 5302	PRINCIPLE OF DATA SCIENCE	3
ASDS 5303	STATISTICAL AND SCIENTIFIC COMPUTING I	3
ASDS 6306	INTERNSHIP/CAPSTONE RESEARCH PROJECT	3

Earth and Environmental Science Specialization

Select two from the following: 6

EVSE 5455	ENVIRONMENTAL DATA SCIENCE
EVSE 5458	MACHINE LEARNING FOR EARTH AND ENVIRONMENTAL SCIENTISTS
GEOL 5428	HYDROGEOLOGY
EVSE 5454	STATISTICS FOR EARTH AND ENVIRONMENTAL SCIENTISTS
GEOL 5465	PHYSICAL OCEANOGRAPHY AND LIMNOLOGY

Select one from the following: 3

EVSE 5317	ENVIRONMENTAL HYDROLOGY
EVSE 5318	RISK ANALYSIS IN WEATHER AND CLIMATE
EVSE 5353	DATA ANALYSIS FOR EARTH AND ENVIRONMENTAL SCIENTISTS

Select one from the following: 3

EVSE 5115	PROFESSIONAL EXPERIENCE
EVSE 5120	ENVIRONMENTAL PROFESSIONAL MENTORING & BUSINESS ETHICS

EVSE 5199	SEMINAR IN ENVIRONMENTAL & EARTH SCIENCES	
Data Science Electives		
Select 6 hours from the following:		6
ASDS 5305	DEEP LEARNING AND ARTIFICIAL NEURAL NETWORKS	
ASDS 6300	SPECIAL TOPICS	
ASDS 6301	ADVANCE REGRESSION ANALYSIS	
ASDS 6302	MACHINE LEARNING WITH APPLICATIONS	
ASDS 6303	DATA MINING WITH INFORMATION VISUALIZATION	
ASDS 6304	OPTIMIZATION AND BIG DATA ANALYTICS	
ASDS 6305	STATISTICAL AND SCIENTIFIC COMPUTING II	
ASDS 5100	INDEPENDENT STUDY	
Total Hours		30

Advising Resources

UNDERGRADUATE AND GRADUATE ADVISING

Location:

Life Science Building Room 206A and 206B

Email:

data.advising@uta.edu

Phone:

817-272-1512

Web:

Speak to an advisor in the Division of Data Science or schedule an appointment. (<https://www.uta.edu/academics/schools-colleges/science/departments/division-data-science/advising/>)