Bachelor of Science in Data Science (Mathematics)

About This Program

The Bachelor of Science in Data Science Mathematics concentration enhances theoretical and computational skills by blending advanced mathematics with algorithm design and statistical modeling. Students gain a deeper understanding of the mathematical principles that underlie modern data analysis, artificial intelligence, and other computational applications. Beyond the UTA Core Curriculum requirements, the degree requires a sequence of courses in Mathematics, Data Science, and Mathematics. In addition, students must complete a year-long Capstone project in collaboration with a supervisor within the College of Science or an Industry Partner.

Competencies

1. Upon completion, students will demonstrate knowledge of fundamentals of mathematics and statistics, in applications to data science.
2. Upon completion, students will demonstrate knowledge of computer programming through receiving a certificate, and therefore passing, a programming course.
3. Upon completion, students will demonstrate the ability to effectively work in teams to complete data science projects

Curriculum

Foundations		
General Core Requirements (https://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/)		42
Students must complete specific courses in certain core areas.		
For Communication select:		
ENGL 1301	RHETORIC AND COMPOSITION I	
An additional communication area course.		
For Life & Physical Science select one of the following sequences:		
BIOL 1441 & BIOL 1442	BIOLOGY I FOR SCIENCE MAJORS: CELL AND MOLECULAR BIOLOGY and BIOLOGY II FOR SCIENCE MAJORS: ECOLOGY AND EVOLUTION	
CHEM 1441 & CHEM 1442	GENERAL CHEMISTRY I and GENERAL CHEMISTRY II	
PHYS 1443 & PHYS 1444	GENERAL TECHNICAL PHYSICS I and GENERAL TECHNICAL PHYSICS II	
GEOL 1301 & GEOL 1302	EARTH SYSTEMS and EARTH HISTORY	
For Mathematics select:		
MATH 1426	CALCULUS I	
MATH 2425	CALCULUS II	
Data Science Foundations		
UNIV 1131	STUDENT SUCCESS	1
or UNIV-SC 1101	CAREER PREPARATION AND STUDENT SUCCESS	
Additional hours required in core.		2
Select two additional Life & Physical Science core courses		6
Select any course numbered 3300 or higher.		3
Data Science Specialization		
DATA 3401	PYTHON FOR DATA SCIENCE 1	4
DATA 3402	PYTHON FOR DATA SCIENCE 2	4
DATA 3421	DATA MINING, MANAGEMENT, AND CURATION	4
DATA 3441	STATISTICAL METHODS FOR DATA SCIENCE 1	4
DATA 3442	STATISTICAL METHODS FOR DATA SCIENCE 2	4
DATA 3461	MACHINE LEARNING	4
DATA 4380	DATA PROBLEMS	3
DATA 4381	DATA CAPSTONE PROJECT 1	3
DATA 4382	DATA CAPSTONE PROJECT 2	3
Mathematics Specialization		
MATH 2326	CALCULUS III	3

MATH 3300	INTRODUCTION TO PROOFS	3
MATH 3302	MULTIVARIATE STATISTICAL METHODS	3
MATH 3313	INTRODUCTION TO PROBABILITY	3
MATH 3318	DIFFERENTIAL EQUATIONS	3
MATH 3321	ABSTRACT ALGEBRA I	3
MATH 3330	INTRODUCTION TO LINEAR ALGEBRA AND VECTOR SPACES	3
MATH 3335	ANALYSIS I	3
MATH 3345	NUMERICAL ANALYSIS AND COMPUTER APPLICATIONS	3
Select a MATH course numbered 3300 or higher.		3
Select a MATH course numbered 3300 or higher or DATA course numbered 2300 or higher.		3
Total Hours		**120**

SUGGESTED COURSE SEQUENCE

Details of a personal course sequence should be made with the guidance of the Data Science undergraduate advisor, particularly since many courses are not offered every semester. For all entering freshmen, it is important to begin the mathematics sequence, starting with MATH 1426, Calculus I, in the first semester.

First Year

Fall Semester	Hours	Spring Semester	Hours
MATH 1426	4	ENGL 1301	3
DATA 3401	4	MATH 2425	4
UNIV 1131 or UNIV-SC 1101	1	DATA 3402	4
Approved Life & Physical Science Sequence	3-4	Approved Life & Physical Science Sequence	3-4
Component Area Course (Suggested DATA 1301)	3		
	15-16		**14-15**

Second Year

Fall Semester	Hours	Spring Semester	Hours
Approved Communication Core	3	Approved Creative Arts Core	3
MATH 2326	3	MATH 3300	3
MATH 3330	3	DATA 3421	4
ELECTIVE (33xx+)	3	DATA 3442	4
DATA 3441	4		
	16		**14**

Third Year

Fall Semester	Hours	Spring Semester	Hours
HIST 1301	3	Approved Additional Natural Science	3
MATH 3313	3	HIST 1302	3
MATH 3345	3	MATH 3302	3
MATH 3321	3	MATH 3335	3
DATA 3461	4	DATA 4380	3
	16		**15**

Fourth Year

Fall Semester	Hours	Spring Semester	Hours
Approved Social & Behavioral Core	3	Approved Language, Philosophy, Culture Core	3
Approved Additional Natural Science	3	POLS 2312	3
MATH 3318	3	DATA 4382	3
POLS 2311	3	ELECTIVE (MATH 33xx+)	3
DATA 4381	3	ELECTIVE (MATH 33xx+ or DATA 23xx+)	3
	15		**15**

Total Hours: 120-122

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/)