Bachelor of Science in Mathematics (Data Science)

About This Program

The Bachelor of Science in Mathematics with an emphasis on Data Science provides a mathematics major with the interdisciplinary skills to derive insights in science and business from big data.

Competencies

1. The student will gain knowledge and skills in mathematics and data science that will prepare them for jobs and careers in data science.
2. The student will a gain knowledge and skills in mathematics and data science that will prepare them for graduate school in data science.
3. The student will gain interdisciplinary skills for deriving insights in science and business from big data.
4. The student will gain knowledge and skills in a wide range of mathematical fields, including abstract algebra, analysis, and statistics.
5. The student will gain knowledge and understanding of definitions and theorems on abstract mathematical concepts.
6. The student will gain knowledge and skills in solving problems and writing proofs about abstract mathematical concepts.

Curriculum

Foundations		
General Core Requirements (https://catalog.uta.edu/academicregulations/degreerequirements/generalcorerequirements/)		42
Students must complete specific courses within certain core areas		
For Communication, select:		
ENGL 1301	RHETORIC AND COMPOSITION I	
For Mathematics, select:		
MATH 1426	CALCULUS I	
MATH 2425	CALCULUS II	
Select one of the following Life & Physical Sciences 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	
GEOL 1301 & GEOL 1302	EARTH SYSTEMS and EARTH HISTORY	
PHYS 1443 & PHYS 1444	GENERAL TECHNICAL PHYSICS I and GENERAL TECHNICAL PHYSICS II	
Mathematics Foundations		
Additional hours required in core from Calculus core sequence.		2
UNIV 1131	STUDENT SUCCESS	1
or UNIV 1101	CAREER PREPARATION AND STUDENT SUCCESS	
Select two courses in Life & Physical Science approved for the core and not previously taken.		6
Mathematics Specialization		
MATH 2326	CALCULUS III	3
MATH 3300	INTRODUCTION TO PROOFS (satisfies Oral Communication Competency)	3
MATH 3302	MULTIVARIATE STATISTICAL METHODS	3
MATH 3313	INTRODUCTION TO PROBABILITY	3
MATH 3314	DISCRETE MATHEMATICS	3
MATH 3316	STATISTICAL INFERENCE	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
MATH 4311	STOCHASTIC MODELS AND SIMULATION	3
Select one of the following:		3
MATH 4313	MATHEMATICAL STATISTICS	

MATH 4314	ADVANCED DISCRETE MATHEMATICS	
MATH 4381	MATHEMATICS RESEARCH	
Select a MATH course numbered 3301 or above, except for capstone courses specifically for prospective middle grades or secondary grades teachers.		3
Select one of the following:		3
MATH 4321	ABSTRACT ALGEBRA II	
MATH 4330	ADVANCED LINEAR ALGEBRA	
MATH 4334	ADVANCED MULTIVARIABLE CALCULUS	
MATH 4335	ANALYSIS II	
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
Total Hours		**120**

SUGGESTED COURSE SEQUENCE

First Year

First Semester	Hours	Second Semester	Hours
MATH 1426	4	MATH 2425	4
Life and Physical Science	3-4	MATH 3316	3
ENGL 1301	3	Life and Physical Science	3-4
Creative Arts	3	DATA 3401	4
UNIV 1131 (or UNIV 1101)	1		
	14-15		**14-15**

Second Year

First Semester	Hours	Second Semester	Hours
MATH 2326	3	MATH 3318	3
MATH 3300	3	MATH 3321	3
MATH 3330	3	DATA 3421	4
DATA 3402	4	Language, Philosophy, and Culture	3
		Communication	3
	13		**16**

Third Year

First Semester	Hours	Second Semester	Hours
MATH 3345	3	MATH 3302	3
MATH 3313	3	MATH 4311	3
MATH 3335	3	Select one of the following:	3
MATH 3314	3	MATH 4313	
DATA 3441	4	MATH 4314	
		MATH 4381	
		DATA 3442	4
		Social and Behavioral Science	3
	16		**16**

Fourth Year

First Semester	Hours	Second Semester	Hours
DATA 3461	4	Select one of the following:	3
Component Area	3	MATH 4321	
POLS 2311 or POLS 2312	3	MATH 4330	
History core	3	MATH 4334	
Life and Physical Science	3-4	MATH 4335	
		MATH 33XX (Math Elective)	3
		History core	3
		Life and Physical Science (Sequence)	3-4

	POLS 2311 or 2312	3
	16-17	**15-16**

Total Hours: 120-124

Advising Resources

First-time-in-college students should plan to speak to the math advisor when starting their second year. Transfer students should contact the math advisor after acceptance at UTA to create a degree plan and enroll in classes.

Location:

PKH 489

Email:

math.advising@uta.edu

Phone:

817-272-9688

Web:

Contact Information and Scheduling (https://www.uta.edu/academics/schools-colleges/science/departments/mathematics/advising/)