Bachelor of Sicence in Mathematics (Industrial and Applied Math)

About This Program

The Bachelor of Science in Mathematics with an emphasis on Industrial and Applied Mathematics prepares students for careers as mathematicians in the emerging high-tech industries. This option is for students seeking immediate employment after graduation. Additional coursework may be required for admission to graduate school.

Competencies

1. The student will gain knowledge and skills in industrial and applied mathematics and that will prepare them for jobs and careers as mathematicians in emerging high-tech industries.
2. The student will gain knowledge and skills in a wide range of mathematical fields, including abstract algebra, analysis, and statistics.
3. The student will gain knowledge and understanding of definitions and theorems on abstract mathematical concepts.
4. 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 & ENGL 1302	RHETORIC AND COMPOSITION I and RHETORIC AND COMPOSITION II	
For Mathematics, select:		
MATH 1426	CALCULUS I	
MATH 2425	CALCULUS II	
For Life & Physical Sciences, select one sequence from the following:		
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 1101	CAREER PREPARATION AND STUDENT SUCCESS	1
or UNIV 1131	STUDENT SUCCESS	
Select two courses in Life & Physical Science approved for the core and not previously taken.		6
Select one of the following in computer programming:		3
CSE 1310	INTRODUCTION TO COMPUTERS & PROGRAMMING	
DATA 3401	PYTHON FOR DATA SCIENCE 1	
MAE 2360	NUMERICAL ANALYSIS & PROGRAMMING	
Mathematics Specialization		
MATH 2326	CALCULUS III	3
MATH 3300	INTRODUCTION TO PROOFS (satisfies Oral Communication Competency)	3
MATH 3313	INTRODUCTION TO PROBABILITY	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
MATH 4322	INTRODUCTION TO COMPLEX VARIABLES	3
MATH 4324	INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATIONS	3
Select additional advanced hours in mathematics except for capstone mathematics courses specifically for prospective middle or secondary grades mathematics teachers		21
IE 3315	OPERATIONS RESEARCH I	3
IE 4315	OPERATIONS RESEARCH II	3
Select one of the following:		3
MATH 4321	ABSTRACT ALGEBRA II	
MATH 4335	ANALYSIS II	
MATH 4334	ADVANCED MULTIVARIABLE CALCULUS	
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	ENGL 1302	3
Creative Arts	3	Life and Physical Science	3-4
UNIV 1131 (UNIV 1101)	1		
	14-15		**13-14**

Second Year

First Semester	Hours	Second Semester	Hours
MATH 2326	3	MATH 3318	3
MATH 3300	3	MATH 3321	3
MATH 3330	3	MATH 33XX (Math Elective)	3
MATH 33XX (Math Elective)	3	MATH 33XX (Math Elective)	3
Language & Philosophy	3	Social and Behavioral Science	3
	15		**15**

Third Year

First Semester	Hours	Second Semester	Hours
MATH 3345	3	MATH 4311	3
MATH 3313	3	MATH 4324	3
MATH 4322	3	MATH 33XX (Math Elective)	3
MATH 3335	3	IE 3315	3
History core	3	Computer programming elective	3
		History core	3
	15		**18**

Fourth Year

First Semester	Hours	Second Semester	Hours
IE 4315	3	Select one of the following:	3
MATH 33XX (Math Elective)	3	MATH 4321	
Component Area	3	MATH 4334	
POLS 2311 or POLS 2312	3	MATH 4335	
Life and Physical Science	3-4	MATH 33XX (Math Elective)	3
		MATH 33XX (Math Elective)	3
		Life and Physical Science	3-4
		POLS 2311 or 3212	3
	15-16		**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/)