MAJOR IN MATHEMATICS - APPLIED MATHEMATICS CONCENTRATION

The Applied Mathematics Concentration requires 66-69 units completed with a grade equivalent of 2.00 or higher.

Students must complete the Core Curriculum requirements in addition to the requirements for a concentration.

The following are common requirements for all Mathematics concentrations:

Code	Title	Units
MATH 265	ELEMENTARY LINEAR ALGEBRA	4
MATH 267	INTRODUCTION TO ABSTRACT MATHEMATICS	4
MATH 273	CALCULUS I	4
MATH 274	CALCULUS II	4
MATH 275	CALCULUS III	4
Select one of the following courses: [1]		3-4
MATH 369	INTRODUCTION TO ABSTRACT ALGEBRA	
MATH 463	LINEAR ALGEBRA	
MATH 473	INTRODUCTORY REAL ANALYSIS	
Total Units		23-24

[1] Student in the Applied Mathematics concentration must take MATH 369.

Applied Mathematics Concentration

Code	Title	Units
Required Courses		
Common Requirements (see above)		
COSC 236	INTRODUCTION TO COMPUTER SCIENCE I	4
MATH 265	ELEMENTARY LINEAR ALGEBRA	4
MATH 267	INTRODUCTION TO ABSTRACT MATHEMATICS	4
MATH 273	CALCULUS I	4
MATH 274	CALCULUS II	4
MATH 275	CALCULUS III	4
MATH 331	PROBABILITY	4
MATH 332	MATHEMATICAL STATISTICS	3
MATH 369	INTRODUCTION TO ABSTRACT ALGEBRA	4
MATH 374	DIFFERENTIAL EQUATIONS	3
MATH 377	MATHEMATICAL MODELS [1]	3
or MATH 439	COMPUTATIONAL PROBABILITY MODELS	
MATH 435	NUMERICAL ANALYSIS I	3
MATH 473	INTRODUCTORY REAL ANALYSIS	4
MATH 475	COMPLEX ANALYSIS	3
MATH 490	SENIOR SEMINAR IN MATHEMATICS	3
Upper-Division Mathematics Electives		
Select two of the following:		6-7
MATH 337	APPLIED REGRESSION AND TIME SERIES PREDICTIVE MODELING	
MATH 379	FOURIER ANALYSIS WITH APPLICATIONS	
MATH 437	OPERATIONS RESEARCH	
MATH 439	COMPUTATIONAL PROBABILITY MODELS [2]	
MATH 451	GRAPH THEORY	
MATH 457	DIFFERENTIAL GEOMETRY	
MATH 463	LINEAR ALGEBRA	
Application Electives		
Select two of the following:		6-8
BIOL 309	GENETICS	
COSC 336	DATA STRUCTURES AND ALGORITHM ANALYSIS	
COSC 417	INTRODUCTION TO THE THEORY OF COMPUTING	
COSC 461	ARTIFICIAL INTELLIGENCE	
COSC 471	COMPUTER GRAPHICS	
MATH 438	LONG-TERM ACTUARIAL MODELS I	
MATH 485	MATHEMATICAL FINANCE	
MATH 486	RISK MANAGEMENT AND FINANCIAL ENGINEERING	
PHYS 241	GENERAL PHYSICS I CALCULUS-BASED	
PHYS 242	GENERAL PHYSICS II CALCULUS-BASED	
PHYS 307	INTRODUCTORY MATHEMATICAL PHYSICS	
POSC 459	SIMULATION AND GAMES IN POLITICAL SCIENCE	
PSYC 314	RESEARCH METHODS IN PSYCHOLOGY	
Total Units		66-69

[1] *One of* MATH 377 *or* MATH 439*, but not both.*

[2] *Only open to students who didn't choose this course as the required course instead of* MATH 377

Suggested Four-Year Plan

Based on course availability and student needs and preferences, the selected sequences will probably vary from those presented below. Students should consult with their adviser to make the most appropriate elective choices.

Freshman

Term 1	Units	Term 2	Units
MATH 273	4	MATH 265	4
ENGL 102 or TSEM 102 (Core 1 or 2)	3	MATH 274	4
Core	3	COSC 236	4
Core	3	TSEM 102 or ENGL 102 (Core 2 or 1)	3
	13		15

Sophomore

Term 1	Units	Term 2	Units
MATH 267	4	MATH 374	3
MATH 275	4	MATH or Applications Elective	3-4
Core 7 (PHYS 241 recommended)	3-4	Core 8 (PHYS 242 recommended)	3-4
Core	3	Core	3
Elective	1-3	Core	3
	15-18		15-17

Junior

Term 1	Units	Term 2	Units
MATH 331	4	MATH 332	3
MATH 369	4	MATH 377 or 439	3
MATH or Applications Elective	3-4	MATH or Applications Elective	3-4
Core	3	MATH or Applications Elective	3-4
Core	3	Core	3
	17-18		15-17

Senior

Term 1	Units	Term 2	Units
MATH 435	3	MATH 475	3
MATH 473	4	MATH 490	3
Core	3	Elective	3
Elective	3-4	Elective	3
Elective	3-4	Elective	3-4
	16-18		15-16

Total Units 121-132

1. Demonstrate knowledge of the properties of numbers and sets.
2. Demonstrate skills and knowledge of appropriate technology used in solving mathematical problems.
3. Demonstrate skills and knowledge of the basic concepts of calculus.
4. Demonstrate skills and knowledge of linear and abstract algebra.
5. Demonstrate skills and knowledge of basic probability and/or statistics.