APPLIED AND COMPUTATIONAL MATHEMATICS CONCENTRATION, MATHEMATICAL SCIENCES (BS)

The concentration in Applied and Computational Mathematics is intended for any student who enjoys mathematics, problem solving, and applications to solving practical problems in business, government, and science. The concentration is intended especially for students seeking a career as quantitative analysts, computational scientists, and applied mathematicians, and for those thinking of continuing the study of applied or discrete mathematics at the graduate level.

Course Requirements

Course	Title	Quarter Hours
CSC 242	INTRODUCTION TO COMPUTER SCIENCE II (or another approved computer science course)	4
Select three of the following:		12
MAT 302	COMBINATORICS	
MAT 304	DIFFERENTIAL EQUATIONS	
MAT 384	MATHEMATICAL MODELING	
MAT 385	NUMERICAL ANALYSIS I	
Select two additional courses from among the above and the following:		8
MAT 335	REAL ANALYSIS I	
MAT 351	PROBABILITY AND STATISTICS I	
MAT 352	PROBABILITY AND STATISTICS II	
MAT 370	ADVANCED LINEAR ALGEBRA	
MAT 381	FOURIER ANALYSIS AND SPECIAL FUNCTIONS	
MAT 386	NUMERICAL ANALYSIS II	
Select one additional course from among the above and the following:		4
MAT 303	THEORY OF NUMBERS	
MAT 305	GRAPH THEORY	
MAT 310	ABSTRACT ALGEBRA I	
MAT 311	ABSTRACT ALGEBRA II	
MAT 336	REAL ANALYSIS II	
MAT 337	COMPLEX ANALYSIS	
MAT 340	TOPOLOGY	
MAT 341	STATISTICAL METHODS USING SAS	
MAT 353	PROBABILITY AND STATISTICS III	
MAT 355	STOCHASTIC PROCESSES	
MAT 387	OPERATIONS RESEARCH: LINEAR PROGRAMMING	
MAT 388	OPERATIONS RESEARCH: OPTIMIZATION THEORY	
Data Analysis requirement, which can be satisfied via one of the following:		
AP Statistics Credit (score of 3 or better)		
An applied statistics or data analysis course from this list: MAT 137, MAT 242, MAT 341 MAT 348, IT 223, PSY 240, BIO 206, ENV 260, SOC 279, MAT 353, HON 180. Other data analysis courses may satisfy the requirement with departmental approval. Note that this course may be taken as one of the four Natural or Computer Science courses required for the BS, as part of the major, or as an open elective.		

Students interested in graduate study in applied mathematics are encouraged to take:

Course	Title	Quarter Hours
MAT 335 & MAT 336	REAL ANALYSIS I and REAL ANALYSIS II	8
MAT 370	ADVANCED LINEAR ALGEBRA	4
MAT 385 & MAT 386	NUMERICAL ANALYSIS I and NUMERICAL ANALYSIS II	8

Open Electives

Open elective credit also is required to meet the minimum graduation requirement of 192 hours.