

MATHEMATICS MAJOR, BACHELOR OF SCIENCE (BS)

The program leading to a BS in Mathematics is rigorous, but flexible. All students enroll in the core of 55 credits of mathematics, and also choose at least three electives in mathematics. Then, there is a choice of electives outside of mathematics that gives students a background in fields where mathematics is heavily used in industry and government. Therefore, this degree prepares students for a career in industry or government or for graduate study in mathematics or a closely related field.

Required Courses

MATH 161	CALCULUS I	5
MATH 162	CALCULUS II	5
MATH 163	CALCULUS III	5
MATH 225	FOUNDATIONS OF MATHEMATICS	5
MATH 231	LINEAR ALGEBRA	5
MATH 241	CALCULUS IV	5
MATH 347	INTRODUCTORY DIFFERENTIAL EQUATIONS	4
MATH 385	PROBABILITY AND STATISTICAL INFERENCE I	5
MATH 432	RINGS AND POLYNOMIALS	5
MATH 460	CONTINUOUS FUNCTIONS	5
MATH 491	SENIOR THESIS	5

Required Electives—choose from the following. 35

A maximum of 20 credits of electives may be counted from outside the MATH Department. Some of these courses may require completion of additional prerequisites.

CHEM 421	PHYSICAL CHEMISTRY
CHEM 422	PHYSICAL CHEMISTRY
CHEM 423	PHYSICAL CHEMISTRY
CSCD 210	PROGRAMMING PRINCIPLES I
CSCD 211	PROGRAMMING PRINCIPLES II
CSCD 300	DATA STRUCTURES
CSCD 305	C++ PROGRAMMING
CSCD 320	ALGORITHMS
CSCD 340	OPERATING SYSTEMS
CSCD 420	AUTOMATA
CSCD 480	INTELLIGENT SYSTEMS
CSCD 501	ADVANCED ALGORITHMS
ECON 300	INTERMEDIATE MICROECONOMIC THEORY
ECON 301	INTERMEDIATE MACROECONOMIC THEORY
ECON 337	ECONOMETRICS
ECON 430	MATHEMATICAL ECONOMICS
EENG 320	SIGNALS AND SYSTEMS I
EENG 321	SIGNALS AND SYSTEMS II
EENG 420	DIGITAL SIGNAL PROCESSING
EENG 440	DIGITAL COMMUNICATION SYSTEMS
EENG 470	CONTROL SYSTEMS
EENG 471	DIGITAL CONTROL SYSTEMS
MATH 331	DISCRETE MATHEMATICS WITH APPLICATIONS
MATH 332	NUMBER THEORY
MATH 430	ADVANCED LINEAR ALGEBRA

MATH 431	APPLIED GROUP THEORY
MATH 433	GALOIS THEORY
MATH 444	NUMERICAL LINEAR ALGEBRA
MATH 445	NUMERICAL ANALYSIS
MATH 447	DIFFERENTIAL EQUATIONS
MATH 448	PARTIAL DIFFERENTIAL EQUATIONS
MATH 461	ADVANCED CALCULUS I
MATH 462	ADVANCED CALCULUS II
MATH 470	FOUNDATIONS OF GEOMETRY
MATH 481	COMPLEX ANALYSIS
MATH 485	PROBABILITY AND STATISTICAL INFERENCE II
MATH 486	PROBABILITY AND STATISTICAL INFERENCE III
MENG 492	FINITE ELEMENT ANALYSIS
PHYS 361	CLASSICAL MECHANICS I
PHYS 362	CLASSICAL MECHANICS II
PHYS 363	SPECIAL RELATIVITY
PHYS 371	INTRODUCTION TO QUANTUM PHYSICS
PHYS 401	ELECTROMAGNETISM I
PHYS 402	ELECTROMAGNETISM II
PHYS 403	ELECTROMAGNETISM III
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Total Credits	89

Student Learning Outcomes—students will:

- demonstrate the ability to create and understand mathematical arguments and proofs;
- demonstrate the ability to communicate mathematical concepts both technically and non-technically;
- demonstrate the ability to use numerical and symbolic mathematical technology/software;
- demonstrate knowledge of mathematical applications in industry and the sciences.