



### Mathematics—Applied

40 credits  
Bachelor of Science

This course of studies enables students to learn the mathematics that is currently useful in business and industry. An industrial mathematician uses and adopts the mathematics necessary to attack problems of practical concern.

Because students of Applied Mathematics become familiar with the problems of science and engineering, and because they are encouraged to do a minor in Computer Science, Statistics, or Actuarial Science, they will be attractive to firms offering employment oriented towards those fields.

#### Employment:

- \* Marketing research
- \* Banking industry
- \* Colleges and Universities
- \* Industries including manufacturing, transportation, Aerospace, communications, machinery, electrical equipment, pharmaceuticals
- \* Federal agencies including Defense, Labor, Justice, Agriculture, Health and Human Services, Treasury, Commerce, Transportation, NASA and Library of Congress state agencies



#### Core Courses

MATH 0220  
MATH 0230  
MATH 0240  
MATH 0413  
MATH 0420  
MATH 1070  
MATH 1180  
MATH 1270  
MATH 1080  
MATH 1100  
MATH 1110  
MATH 1360

#### 9 courses - 31 credits

Analytic Geometry and Calculus 1  
Analytic Geometry and Calculus 2  
Analytic Geometry and Calculus 3  
Introduction to Theoretical Math  
Introduction to Theory 1 - Variable Calculus  
Numerical Mathematics Analysis  
Linear Algebra 1  
Ordinary Differential Equations 1  
Numerical Math: Linear Algebra **OR**  
Linear Programming **OR**  
Industrial Mathematics **OR**  
Modeling in Applied Mathematics 1

#### Elective Courses

#### 2 courses - 6 credits

Choose two courses from the following list of courses:

MATH 0430  
MATH 1020  
MATH 1100  
MATH 1110  
MATH 1360  
MATH 1530  
MATH 1540  
MATH 1550  
MATH 1560

Introduction to Abstract Algebraic Systems  
Applied Elementary Number Theory  
Linear Programming  
Industrial Mathematics  
Modeling in Applied Mathematics 1  
Advanced Calculus 1  
Advanced Calculus 2  
Vector Analysis and Application  
Complex Variables and Application

#### Additional Requirements

#### 2 courses - 3 credits

Applied Mathematics majors must take the following sequences of courses to fulfill the capstone course requirement:

MATH 1951  
MATH 1952

Senior Research for Applied Math 1 (*Spring of Junior Year*)  
Senior Research for Applied Math 2 (*Fall of Senior Year*)

#### Required Science Courses

#### 3 courses - 11 or 12 credits

Applied Mathematics majors must take the following courses as part of their General Education Requirements:

PHYS 0174  
PHYS 0175  
STAT 1000  
STAT 1151  
CS 0421  
MATH 1001

Basic Physical Science and Engineering 1  
Basic Physical Science and Engineering 2  
Applied Statistical Methods (4 cr.) **OR**  
Introduction to Probability (3cr.) **OR**  
Programming Using Java **OR**  
Mathematical Computing