# Applied Mathematics - Supplemental Major

The program consists of 24 credits in the designated list of courses. To earn a supplementary major in applied mathematics a student must earn 15 credits from Categories I.A and I.B of which at least 9 credits must be from Category I.B. A student must also earn 9 credits from the Category II list of related disciplines. The courses in Category II may be taken from any combination of areas. A student may not earn a bachelor’s degree in mathematics and also a supplementary major in applied mathematics.

## Requirements

### Category I.A.
Select two from the following: 6
- MATH 377  Introduction to Numerical Methods
- MATH 391  Vector Analysis
- MATH 392  Introduction to Ordinary Differential Equations
- MATH 421  Financial Mathematics I
- STAT 371  Statistics for Engineers and Scientists I

### Category I.B.
Select three from the following: 9
- MATH 331  Introduction to Modern Algebra
- MATH 332  Introduction to Analysis
- MATH 422  Financial Mathematics II
- or MATH 423  Numerical Optimization and Applications to Financial Mathematics
- MATH 430  Combinatorial Mathematics
- MATH 451  Introduction to Differential Geometry
- MATH 453  Introduction to Topology
- MATH 454  Mathematical Logic
- MATH 471  Complex Variables
- MATH 472  Fourier Series and Boundary Value Problems
- MATH 473  Calculus of Variations and Optimal Control
- MATH 480  Matrix Theory and Applied Linear Algebra
- STAT 470  Probability: Theory and Applications
- STAT 480  Statistics: Theory and Applications

### Category II
Select 9 credits from the following Related disciplines: 9
- C E 315  Structural Analysis
- C E 331  Fluid Mechanics and Hydraulics
- C E 356  Fundamentals of Environmental Engineering
- C E 382  Hydraulic and Hydrologic Engineering
- C S 372  Data Structures and Algorithms
- C S 476  Computer Graphics I
- C S 486  Bioinformatics
- C S 491  Parallel Programming
- CHME 305  Transport Operations I: Fluid Flow
- CHME 306  Transport Operations II: Heat and Mass Transfer
- CHME 412  Process Dynamics and Control
- CHME 441  Chemical Kinetics and Control Engineering
- CHEM 433  Physical Chemistry I
- CHEM 434  Physical Chemistry II
- CHEM 456  Inorganic Structure and Bonding
- ECON 405  Introductory Econometrics
- ECON 457  Mathematical Economics
- ECON 498  Independent Study (with approval)
- E E 312  Signals and Systems I
- E E 314  Signals and Systems II
- E E 395  Introduction to Digital Signal Processing
- E E 473  Introduction to Optics
- E E 475  Automatic Control Systems
- E E 476  Computer Control Systems
- E E 496  Introduction to Communication Systems
- E E 497  Digital Communication Systems I
- FIN 355  Investments
- FIN 385  Analysis of Financial Markets and Institutions
- FIN 406  Theory of Financial Decisions
- FIN 435  Investment Analysis
- I E 365  Quality Control
- I E 413  Engineering Operations Research I
- I E 423  Engineering Operations Research II
- I E 460  Evaluation of Engineering Data
- I E 466  Reliability
- M E 332  Vibrations
- M E 333  Intermediate Dynamics
- M E 338  Fluid Mechanics
- M E 341  Heat Transfer
- PHYS 395  Intermediate Mathematical Methods of Physics
- PHYS 451  Intermediate Mechanics I
- PHYS 454  Intermediate Modern Physics I
- PHYS 455  Intermediate Modern Physics II
- PHYS 461  Intermediate Electricity and Magnetism I
- PHYS 462  Intermediate Electricity and Magnetism II
- PHYS 473  Introduction to Optics
- PHYS 476  Computational Physics
- PHYS 480  Thermodynamics
- PHYS 485  Independent Study
- PHYS 495  Mathematical Methods of Physics I
- PHYS 497  Introduction to Space Plasma Physics
- SUR 351  Introductory Spatial Data Adjustment I
- SUR 451  Advanced Survey Measurements, Analysis, and Adjustments
- SUR 461  GNSS Positioning
- C S 510  Automata, Languages, Computability
- C S 570  Analysis of Algorithms

Total Credits: 24
Student must be eligible to take 500-level courses.