Applied Mathematics, Minor

This minor prepares you to bring valuable mathematical skills, process-oriented thinking and quantitative problem-solving to any field that leverages conceptual understanding into quantitative predictions. Your in-depth training in mathematical techniques and computational methods complement the foundational concepts of most science majors.

Description

Mathematical modeling is a fundamental tool of modern science and engineering, in which a firm grasp of the underlying processes in a system is synthesized into quantitative predictions. A minor in applied mathematics provides students the mathematical language required to analyze existing models and to produce new models for new questions.

The foundational tools in this applied mathematics minor are calculus, differential equations and linear algebra. When combined, these concepts provide a powerful new lexicon that unlocks the majority of models throughout science and engineering. Upper-level electives grant students in the applied mathematics minor the opportunity to focus in specialty areas such as the study of chaos, mathematical biology, partial differential equations or optimization. Expertise in these areas is becoming increasingly important for students who expect to participate in careers requiring analysis or modeling of real-world situations.

At a Glance

- College/School: New College of Interdisciplinary Arts and Sciences
- Location: West campus

Program Requirements
The minor in applied mathematics consists of 20 credit hours, of which nine must be upper-division. A minimum of six credit hours must be taken through courses offered by the School of Mathematical and Natural Sciences. All courses used to satisfy requirements for the minor must be passed with a "C" (2.00) or better.

**Required -- 14 credit hours**

- MAT 271: Calculus with Analytic Geometry II (MA) (4)
- MAT 272: Calculus with Analytic Geometry III (MA) (4)
- MAT 275: Modern Differential Equations (MA) (3)
- MAT 343: Applied Linear Algebra (3)

**Electives -- 6 credit hours**

- MAT 300: Mathematical Structures (L) (3)
- MAT 350: Techniques and Applications of Applied Mathematics (3)
- MAT 371: Advanced Calculus I (3)
- MAT 421: Applied Computational Methods (CS) (3)
- MAT 451: Mathematical Modeling (CS) (3)

Depending on a student's undergraduate program of study, prerequisite courses may be needed in order to complete the requirements of this minor.

**Enrollment Requirements**

**GPA Requirement:** None

**Incompatible Majors:** BS in applied mathematics; BA or BS in mathematics; BS in applied mathematics for the life and social sciences

**Other Enrollment Requirements:** None

Current ASU undergraduate students may pursue a minor and have it recognized on their ASU transcript at graduation. Students interested in pursuing a minor should consult their academic advisor to declare the minor and to ensure that an appropriate set of courses is taken. Minor requirements appear on the degree audit once the minor is added. Certain major and minor combinations may be deemed inappropriate by the college or department of either the major program or the minor. Courses taken for the minor may not count toward both the major and the minor. Students should contact their academic advisor for more information.

**Career Opportunities**
Career opportunities for a student with a minor in applied mathematics include:

- bioinformatics scientist
- business intelligence analyst
- clinical data manager
- mathematician, statistician, biostatistician
- molecular and cellular biologist
- natural science manager
- secondary school teacher
- water resource specialist

**Contact Information**

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