Applied Mathematics

Background
Metropolitan State University offers a bachelor of science in applied mathematics. The objective of the applied mathematics major is to prepare students for careers in fields that rely critically on specialized applications of mathematics. Students will learn mathematical concepts, develop excellent analytic, critical thinking, and problem solving skills, as well as learn mathematics that can be used to solve a wide range of problems in the sciences, engineering, industry and technology.

Careers
Applied mathematicians are in demand in a wide variety of economically viable and growing fields. A few examples are financial industries with applications in actuarial science and economics; engineering fields with applications in manufacturing, operations management, energy management, embedded systems, cyber security, and more general computer technology; and in medical fields with applications in genetics research and epidemiology. Further, it is not uncommon for professional job postings to include applied mathematics, as one of many disciplines which provide a suitable background. For students wishing to continue to graduate studies in mathematics, the department encourages taking further mathematics electives which may include advanced independent study topics arranged with faculty.

Program
The Mathematics Department offers a solid, flexible and innovative program in applied mathematics. Through a multidisciplinary focus, the mathematics major develops both depth and breadth, providing students with tools for success in the workforce and a solid basis for further studies in mathematics or related fields. Metropolitan State University is accredited by The Higher Learning Commission and is a member of the North Central Association of Colleges and Schools.

Major Requirements
The applied mathematics major consists of the following components:
- General education and liberal studies courses
- Prerequisites for the Major (Prerequisite credits do not count toward major credits)
- STAT 201 Statistics I
- MATH 210 Calculus I
- MATH 211 Calculus II

Applied Mathematics Foundation Courses
- ICS 140 Programming Fundamentals
- PHYS 211 Calculus Based Physics I
- MATH 301 Introduction to Analysis
- MATH 310 Calculus III: Multivariable Calculus
- MATH 320 Probability

Applied Mathematics Core Courses
- MATH 315 Linear Algebra and Applications
- MATH 340 Mathematical Modeling
- MATH 350 Ordinary Differential Equations
- MATH 450 Operations Research
- MATH 471 Abstract Algebra
- MATH 499 Mathematics Senior Seminar

Electives (one of the following)
- MATH 375 Complex Variables
- MATH 405 Partial Differential Equations
- MATH 420 Numerical Analysis
- STAT 301 Analysis of Variance
- STAT 311 Regression Analysis
- STAT 351 Environmental Statistics
- OR other upper division mathematics course with the consent of advisor.

Undergraduate Catalog
Applied Mathematics Major Requirements, Course Descriptions, Major Checklist and Course Sequence
www.metrostate.edu/msweb/explore/catalog/undergrad/
Twin Cities Community Colleges Course Equivalency Transfer Guide (Semester Course Equivalencies for Applied Mathematics Foundation, Core and Elective courses)
www.mntransfer.org
www.metrostate.edu/msweb/explore/com/metro_alliance

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