Undergraduate Major in Applied Mathematical Sciences at UCM

UC Merced offers an undergraduate major leading to a B.S. degree in the Applied Mathematical Sciences. This educational experience provides students with knowledge of the foundations of mathematics and the skills needed to apply mathematics to real-world phenomena in the social sciences, natural sciences and engineering. The curriculum is composed of courses in the fundamentals while allowing for building expertise in an application area through the emphasis tracks. There is a core set of courses all mathematical sciences students take. Beyond these classes, students complete an emphasis track consisting of courses in other fields. Some examples of emphasis tracks include physics, computational biology, economics, computer science and engineering, and engineering mechanics. New emphasis tracks will be added alongside new programs developing at UC Merced. Students may also design their own emphasis track with the approval of the faculty program leads for the Applied Mathematical Sciences major.

Transfer students who wish to major in Applied Mathematical Sciences should complete two semesters of calculus of a single variable, vector calculus, linear algebra and differential equations. In addition, transfer students should complete one semester of general chemistry with laboratory and two semesters of calculus-based physics with laboratory. Students should consult the Information for Prospective Students link on the School of Natural Sciences website for more information.

A degree in applied mathematical sciences opens the door to a wide variety of careers. Employers understand that a degree in mathematics means a student has been trained well in analytical reasoning and problem solving. Moreover, applied mathematical sciences majors with skills in scientific computing have the additional leverage of substantial computing experience. The market for applied mathematicians has usually been good, especially for those who can relate their mathematics to real world problems. In particular, applied mathematics majors familiar with concepts in management, biology, engineering, economics or the environmental sciences among others are well suited for many specialized positions. In addition, the breadth and rigor of this program provide an excellent preparation to teach mathematics at the elementary or high school levels.

Program Learning Outcomes

The over-arching goal of the Applied Mathematical Sciences program is to

> ***Build a community of life-long learners that use the analytical and computational tools of mathematics to solve real-world problems.***

Upon graduating, we expect students completing the Applied Mathematical Sciences major to have become effect problem-solvers, meaning that student will be able to

1. Solve mathematical problems using analytical methods.
2. Solve mathematical problems using computational methods.
3. Recognize the relationships between different areas of mathematics and the connections between mathematics and other disciplines.
4. Give clear and organized written and verbal explanations of mathematical ideas to a variety of audiences.
5. Model real-world problems mathematically and analyze those models using their mastery of the core concepts.

Below is some specific information about this major. For more information, please contact Prof. François Blanchette

- Description
- Major requirements
- Minor requirements
- Core courses
- Undergraduate mathematics personnel (faculty and lecturers)
- UC Merced Math Society