

courses chosen from the areas of real and complex analysis, algebra, ordinary or partial differential equations, numerical analysis, probability, or mathematical statistics). The ability to write and speak effectively in English is required, and the capacity to program in a high-level computer language is highly recommended.

SCU's Engineering Graduate Core

In keeping with the University's philosophy of "educating the whole person," the School of Engineering has adopted a set of graduate core requirements to help students deepen their understanding of the interdisciplinary and global environment in which they operate. Students earning a graduate engineering degree from Santa Clara must take one or more courses totaling two units in each of three areas: (1) emerging topics in engineering, (2) engineering and business or entrepreneurship, and (3) engineering and society. At Santa Clara University, we educate beyond narrow specializations in order to prepare our students to address the challenges of an increasingly global world in an ethical and socially conscious way.

Undergraduate Education

While the department does not award baccalaureate degrees, it offers three upper-division courses in mathematics and its applications to engineering (differential equations; numerical methods; and probability and statistics).

Faculty

About 20 dedicated men and women teach in the department, conduct research, and serve as academic advisors and mentors to students. Our team of experts provides great flexibility in meeting our students' needs. An open-door policy and scheduled office hours afford ample opportunities for students to receive one-on-one assistance with challenging mathematical concepts and applications.

All departmental faculty members hold at least one advanced degree. Some hold or have retired from permanent positions in industrial mathematics or engineering, and others hold academic posts in other departments in the School of Engineering, in the Department of Mathematics and Computer Science, or in the Department of Finance.

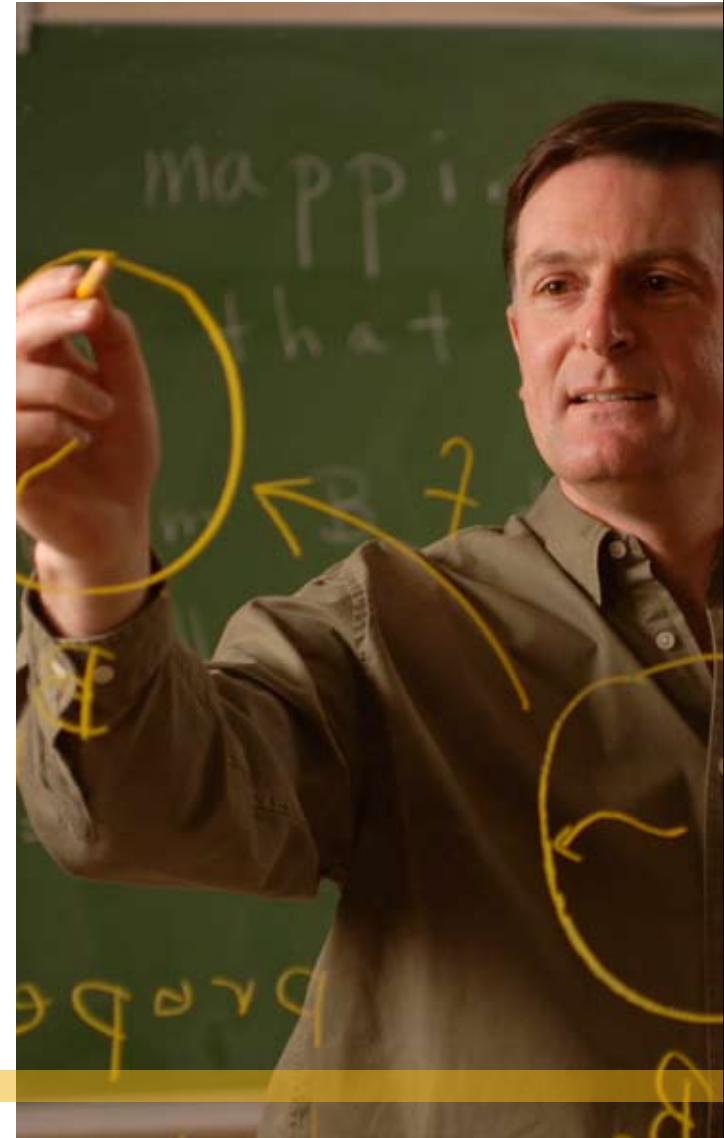
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Applied Mathematics



SCU OMC-7916 1/09 1,000



Applied Mathematics: A Master's Degree and More in Support of Engineering



The Department of Applied Mathematics serves students throughout the School of Engineering via courses that bridge mathematical theory and application to engineering.

Working professionals who seek to further their careers by the study of mathematics and its applications to engineering appreciate the depth, breadth, and flexibility of our master's program in applied mathematics. The department does not award baccalaureate or doctoral degrees, but its courses are available to students pursuing such degrees or certificates in other departments and to those enrolled in the non-degree program called Open University.

In exploring applied mathematics, our students learn to be the problem solvers of tomorrow. They study fundamental concepts and develop tools needed to model the physical world and to tackle the complexities of modern engineering. New courses arise as warranted; indeed, courses in the innovative and exciting fields of mathematical finance and cryptography arose from requests by students.

Career Opportunities

Students who earn a Master of Science degree in Applied Mathematics study mathematics and statistics and learn how to apply these subjects to tackle problems in engineering and other fields. Graduates find employment as

- industrial mathematicians, scientists, and engineers
- professionals in the financial services industry
- actuaries
- researchers
- consultants
- community college instructors

Mission of the Department

The department strives to serve students and faculty members in three main ways:

- Offering undergraduate and graduate courses in applied mathematics and statistics beyond the level of the calculus sequence
- Collaborating in research with faculty and graduate students in engineering and providing consultation, expertise, and assistance in applied mathematics and statistics and other related services to students and faculty
- Furnishing the opportunity for students to pursue a master's degree in applied mathematics outside usual working hours

The department maintains a flexible curriculum to accommodate students' wide variety of goals, backgrounds, and aptitudes. We expect our students, both undergraduate and graduate, to learn mathematics and its applications to their own engineering disciplines.



Master's Degree Program in Applied Mathematics

The Master of Science degree provides the opportunity to study mathematics and statistics in depth and with breadth on a part-time or full-time basis. The program is designed primarily for professional engineers, scientists, and mathematicians. Santa Clara University's ideal location in the heart of Silicon Valley, coupled with the flexibility of our course offerings in the early morning and evening hours, allows working professionals to complete the program in two to four years.

Guided by a faculty advisor, students tailor their program of study to their own particular interests and goals. Generally, students complement courses in our department with study in other engineering departments or in finance. A thesis option is available.

Concentration in Mathematical Finance

An optional Concentration in Mathematical Finance is offered within the master's degree program. Approximately half of the required courses are taken from the Department of Applied Mathematics, and others from SCU's Leavey School of Business. Students entering the burgeoning field of mathematical finance gain the grounding they need in suitable areas of mathematics and business in this concentration.

Master's Degree Requirements and Admissions Criteria

The master's degree requires successful completion of 45 quarter units in appropriate departments; at least 12 of these units must be in 300-level courses. Students work closely with a faculty advisor to select an individual program of study for which a grade point average of 3.0 or better must be maintained. All School of Engineering graduate core requirements must be met; this requirement is described further in the next section.

Admission to the master's degree program requires a bachelor's degree in engineering, science, or mathematics, as well as the mathematics courses that a bachelor's degree in mathematics from Santa Clara University affords (calculus, differential equations, abstract algebra, linear algebra, advanced calculus, and a minimum of five upper-division