



Why major in mathematics?

Mathematics is a creative field of study combining quantitative reasoning and precision with intuition and imagination. It is also a powerful tool for solving practical problems. Utilizing the power of modern computers, mathematics is being used in government, business, science and engineering in unprecedented ways: to minimize cost of an inventory system, to plan the path of a communication satellite, to model oil reservoirs and to make and break secret codes. Mathematicians often work in teams with non-mathematicians helping them to format and solve mathematical problems.

Why choose Cal State Fullerton?

Teaching is our first Priority – Our faculty members’ specialties cover a wide range of mathematics—from pure to applied mathematics, as well as mathematics education. All faculty members are dedicated to teaching both in the classroom and in the preparation of classroom materials. Department members have written more than 40 textbooks that are used throughout the country. Our classes for majors are small and there is ample time for personal interaction with faculty members.

Scholarly Enrichment – Our students participate in national competitions, present papers at regional mathematics meetings, are recipients of scholarships and regularly go on to respected graduate programs. Select students have the opportunity to conduct research with faculty members and have won awards in statewide and national competitions. The Department of Mathematics is committed to mentoring students in activities that will advance their education and career goals.

Preparation for Graduate Study – About half of our students continue their studies after graduation, often in a field other than mathematics. A degree in mathematics is excellent preparation for advanced studies in several other disciplines. More than 30 of our alumni have completed a Ph.D. We have been successful in placing our students at prestigious programs throughout the country. Our master’s degree includes two programs, both

of which have been very well received—one for secondary teachers and one for applied mathematics. Teaching assistantships are also available.

Outstanding Faculty – The Department of Mathematics is home to four faculty members who have been honored with the Cal State Fullerton Outstanding Professor Award. In addition, two of those individuals have received the system-wide award for the 23 California State University campuses. Several faculty members have achieved regional recognition for distinguished teaching, while others have received national awards for advising and service from the Mathematical Association of America.

Faculty members are involved in regional and national organizations as office holders and editors. Most faculty members have active research careers, as well. These activities keep faculty members in touch with the current scholars and keep them abreast of the newest developments in their fields.

Tutoring Center and State-of-the-Art Facilities – The department has a walk-in Tutoring Center, located in McCarthy Hall 187, for students who need help with their course work. Cal State Fullerton also features state-of-the-art facilities including an electronic classroom for the teaching of calculus, in addition to a Calculus Workshop Program for precalculus and first-year calculus students. The department has a strong emphasis in the preparation of mathematics teachers and a newly-established teaching lab to prepare teachers for the elementary and secondary levels to help achieve that goal. There are also opportunities to grade papers or tutor for those students who wish to have extra income.

What career opportunities are available?

A Bachelor of Arts degree in Mathematics prepares students for exciting and financially rewarding careers in business, industry or government. Our graduates enjoy positions as actuaries, software engineers, computer analysts, mathematicians and statisticians.

Teaching also is an important activity in the careers of many mathematicians. Today, there is an increasing need for educators with excellent training to teach in high schools, community colleges and universities. A bachelor's degree in mathematics also prepares students to go onto graduate school in mathematics or other subjects such as law, medicine, computer science and economics.

What courses are required?

The Bachelor of Arts degree in Mathematics requires a total of 45 units in mathematics plus an additional 9-12 units in a cognate area of interest. The 45 units consist of a 27-unit core requirement; which is completed by all majors and an additional 18-unit requirement in one of four concentrations.

Core Courses (27 units)

All students are required to complete the following 27 units:

Math 150A, B Analytic Geometry and Calculus (4 units, 4 units)

Math 250A Intermediate Calculus (4 units)

Math 250B Introduction to Linear Algebra and Differential Equations (4 units)

Math 280 Strategies of Proof (2 units)

Math 307 Linear Algebra (3 units)

Math 335 Mathematical Probability (3 units)

Math 350A Advanced Calculus (3 units)

Additional Requirements (18 units)

Each student completes one of the following concentrations:

Pure Mathematics Concentration

Applied Mathematics Concentration

Probability and Statistics Concentration

Teaching Mathematics Concentration

Cognates (9-12 units)

In addition, each student completes one of the following cognates:

Computer Science (10 units)

Economics (12 units)

Management Science (9 units)

Physics (11 units)

Chemistry (10 units)

Civil Engineering (9 units)

Mathematics (9 units)

Students must also be skilled in elementary computer programming and fulfill the university writing requirement, (Math 380) in order to receive a degree.

Minor in Mathematics

The mathematics minor consists of 25 units of course work that includes:

Core requirements (16 units)

Math 150A, B Analytic Geometry and Calculus (4 units, 4 units)

Math 250A Intermediate Calculus (4 units)

Math 250B Introduction to Linear Algebra and Differential Equations (4 units)

Upper-division courses (Minimum of 9 units)

Choose at least nine units of upper-division mathematics, exclusive of Math 303A, Math 303B, 380, 401, 402, 495, 496 and 499.

Minor in Mathematics for Teacher Education

The minor in mathematics for teaching at the elementary level includes 20 units of course work offered by the Department of Mathematics. The courses must include Mathematics 150B or 338 and 303A, B.

For secondary education, the minor consists of 22 units of course work selected from courses offered by the Department of Mathematics. The courses must include Mathematics 250B and six upper-division courses in mathematics.

All courses taken for the minor, either mathematics or mathematics for teachers, must be completed with a grade of "C" or better.

Please consult the university catalog for more information regarding course work.

How do I get a teaching credential from the Department of Mathematics?

The department, in conjunction with the Department of Secondary Education, offers course work meeting the requirements for a California single subject credential in mathematics. This credential permits graduates to teach any mathematics course offered at the elementary or secondary level. For Cal State Fullerton to recommend this credential, a student needs to complete the department's state-approved Single Subject Matter Preparation Program, which is essentially the teaching option under the major, and have completed the two-semester math-ed and teacher-ed program. The program includes methodology course work and the student teaching experience. Students may enter this program in either the fall or spring semester.

For more information, call the department office at (714) 278-3631, or the Department of Secondary Education at (714) 278-3411, for information on attending an orientation meeting.

How can I get involved?

The department has an active Math Club that provides an opportunity for math majors to join together in planning and supporting a wide variety of mathematics-related events. During the past few years, the club has sponsored presentations in a wide variety of areas of mathematics to include career options in mathematics, planning for the teaching credential program and undergraduate research experiences. Fund-raisers are also held to support a student scholarship to a deserving mathematics major. Social activities include athletic competitions pitting students against faculty members, holiday parties and Friday afternoon pizza parties.

Who advises me?

New students are initially advised by the department chair or vice chair. Thereafter, students meet each semester with an adviser that specializes in the student's concentration to offer advice on course selection. Students are free to select their own adviser. To make an advising appointment, call (714) 278-3631.

Where can I get additional information?

We encourage you to learn more about our program by contacting the department chair, Dr. James O. Friel, or the vice chair, Maijian Qian at (714) 278-3631. Visit the Department of Mathematics, California State University, Fullerton, P.O. Box 6850, McCarthy Hall 154, Fullerton, California, 92834-6850.

We also invite you to check out our Web site at <http://math.fullerton.edu> for additional information about our programs, students and faculty members.

See for yourself how your ambitions can become reality by selecting mathematics at Cal State Fullerton. Don't wait – start making your plans today!

