Mathematics

Mathematics serves a dual purpose in that it is both a science and a tool necessary for a broad spectrum of work, including universal applications in science, engineering, business, economics, psychology, political science, and human affairs.

Primarily, there are two types of mathematicians. There are theoretical, or pure mathematicians, who devote themselves to and promote mathematical science by discovering new principles and relationships among existing math theories, and there are applied mathematicians. Applied mathematicians develop techniques and approaches to solve practical problems in natural and social sciences, engineering, and other fields. Courses offered by CSUB's Mathematics Department instruct students with essential theoretical development and problem-solving techniques used by mathematicians.

Course work in statistics and teacher preparation are other essential programs offered by CSUB's mathematics professors and lecturers.

Whether one's interests lie in a career as an actuary for an insurance company, an environmental research statistician, or high school mathematics teacher, the CSUB curriculum furnishes students with the mathematical concepts and processes appropriate for a desired career.

Training and Career Outlook

Those with baccalaureate degrees (with the exception of newly-credentialed teachers) will face more competition than those with graduate degrees. Prospects are stronger for applied mathematicians, rather than those with concentrations in theoretical mathematics. Actuarial work, systems analysis, computer programming and engineering, economics, and physics are other study concentrations that help make graduates more marketable.

CSUB Alumni Careers

Kent Koeninger
Senior Analyst
Compaq Computers

Kerri Hamer
Mathematics Teacher
South High School

Dawn White
Lecturer
CSUB Mathematics Department

Claire Lahorgue
Lecturer
CSUB Mathematics Department

Carol Smith
Math Lab Coordinator
Bakersfield College

"The degree gives me confidence in teaching, and the University of Wyoming where I am going for my master's has been very impressed with the course work I took at CSUB for my baccalaureate degree."

Regina Hukill
Mathematics Teacher
Foothill High School

CSUB Alumni in Graduate School

Ed Elliot
University of California, San Diego

Sharon Johnston
University of California, Davis

William Ott
University of Maryland

Sean Watson
University of Washington

Natural Sciences, Mathematics & Engineering
California State University, Bakersfield
9001 Stockdale Highway
Bakersfield, California 93311-1099

Department of Mathematics
Science Building 114A
661-664-3151
FAX: 661-664-2039
E-Mail: klsmith@csub.edu

Mathematics / Requirements for the Major

Sample program for students who want to graduate with a degree in ***Mathematics***

Requirements for the Major

Students seeking a Bachelor of Science degree in Mathematics must complete the following:

A. MATH 201 Calculus I
MATH 202 Calculus II
MATH 203 Calculus III
MATH 204 Calculus IV
MATH 222 Lab Experience I
MATH 300 Sets and Logic
MATH 330 Linear Algebra
MATH 331 Algebraic Structures I
MATH 340 Probability Theory
MATH 363 Real Analysis I

B. CMPS 212 Computer Science I

C. One of the following tracks:

1. Applied Mathematics Track

a. MATH 490 Senior Seminar

b. Four of the following:
MATH 302 Ordinary Differential Equations
MATH 305 Numerical Analysis
MATH 312 Complex Variables
MATH 338 Analysis of Variance
MATH 339 Regression Analysis
MATH 341 Mathematical Statistics
MATH 350 Mathematical Modeling
MATH 402 Partial Differential Equations
MATH 420 Foundations of Geometry
MATH 430 Number Theory
MATH 431 Algebraic Structures II
MATH 450 History of Mathematics
MATH 463 Real Analysis II

One of the four courses must be MATH 302 or 350, and a second must be either MATH 338, 339, or 341.

c. Cognate area: One upper-division course in a related discipline; must be approved by the department.

2. Teaching Mathematics Track

a. MATH 491 Senior Seminar

b. Each of the following:
MATH 341 Mathematical Statistics
MATH 420 Foundations of Geometry
MATH 425 Modern Mathematics for Teachers
MATH 430 Number Theory
MATH 450 History of Mathematics

c. EDSE 241 Early Field Experience/Secondary School (2 units)

d. Cognate area: At least two five-unit courses in one of the following: Biology, Chemistry, Geology, or Physics.

3. Theoretical Mathematics Track

a. MATH 490 Senior Seminar

b. Four of the following:
MATH 302 Ordinary Differential Equations
MATH 305 Numerical Analysis
MATH 312 Complex Variables
MATH 338 Analysis of Variance
MATH 339 Regression Analysis
MATH 341 Mathematical Statistics
MATH 350 Mathematical Modeling
MATH 402 Partial Differential Equations
MATH 420 Foundations of Geometry
MATH 430 Number Theory
MATH 431 Algebraic Structures II
MATH 450 History of Mathematics
MATH 463 Real Analysis II

Within this set of courses, students must take at least one of the following: MATH 431 or 463.

c. Cognate area: One upper-division course in a related discipline; must be approved by the department.

Teaching Credential-Single Subject

An approved single subject credential program is offered through the Mathematics Department (see Teaching Mathematics Track, C2).

Requirements for the Minor in Mathematics

Students must complete 20 units, to include MATH 203, 204, 222, and 10 upper division units. These courses are to be chosen subject to the approval of a Department of Mathematics advisor. Note: MATH 320 and 321 together may count as 5 of the upper division units.

Requirements for the Minor in Applied Statistics

Students must complete 21 quarter units chosen from MATH 140 or equivalent, MATH 210, MATH 338, MATH 339, MATH 340, and MATH 341.

Mathematics Scholarships

- Arts and Sciences Merit Award Scholarship Program
- Jeanette Haskin Endowment for Women in Science
- Kern County Science Foundation
- National Science Scholars Program