MATHEMATICS, BS, APPLIED MATHEMATICS CONCENTRATION

Natural Sciences, Mathematics, and Engineering (nsme) (https://catalog.csub.edu/general-information/csub-information/school-natural-sciences-mathematics-engineering/)

Mathematics Department (https://catalog.csub.edu/general-information/csub-information/school-natural-sciences-mathematics-engineering/mathematics-department/)

Department Chair: David Gove

Office: Science Building III, Room 228

Phone: (661) 654-3151

Email: math@csub.edu

www.csub.edu/math/ (http://www.csub.edu/math/)

Program Maps for Natural Sciences, Mathematics, and Engineering (https://programmap.csub.edu/academics/interest-clusters/4e942a6e-b8e4-4b60-a1ae-334235acc581/)

Program Description

Mathematics is a unique and valuable science that is enjoyable and rewarding. The Department of Mathematics provides a collection of mathematics courses designed to challenge and stimulate all open minded and thoughtful students regardless of individual backgrounds or major interest areas. This is done by combining flexibility, applicability, and historical perspective in the design of the mathematics curriculum. Furthermore, depth of understanding and appreciation are not sacrificed to quantity; the major emphasis is upon inquiry, creativity, methods, techniques, and thought processes rather than bulk of material.

The classroom goal is to discover both the importance and beauty of mathematics by combining lectures with problem solving recitations, student presentations, writing assignments, computer experience, and any other workable approaches to learning. The Department of Mathematics at CSUB includes a discussion session in every 4-unit mathematics course. A student is encouraged to interpret and communicate mathematically with others, to follow self-direction and in-depth study, and to investigate the interplay of mathematical concepts. A teacher acts as a resource person, stresses the spirit and point of view of mathematics, and provides for feedback of the relative value of classroom activities.

Upon completion of any mathematics course, students are better prepared to be participants in a highly technological, scientifically complex environment. From a subjective point of view, they should have an improved grasp of the art and beauty of rational reasoning and discourse both as an observer and a participant. From an objective point of view, they should have acquired new skills which, alone or in combination with others, will enhance both an understanding of and performance in the scientific world. A detailed description of student learning goals and objectives can be found at www.csub.edu/irpa/_files/pdfs/assessment-plans/bs-mathematics-slos.pdf (https://catalog.csub.edu/academic-degrees-programs/undergraduate-majors/mathematics-bs-applied-mathematics-concentration/www.csub.edu/irpa/_files/pdfs/assessment-plans/bs-mathematics-slos.pdf)

Program Requirements

Includes courses that link mathematics with the sciences. This concentration prepares students for a career or advanced studies in the mathematical sciences.

Code	Title	Units
General Education Requirements [1]		
First-Year Seminar (FYS)		2
Lower Division Area A: Foundational Skills		9
Lower Division Area B: Natural Sciences		6
Lower Division Area C: Arts and Humanities		6
Lower Division Area D: Social and Behavioral Sciences		3
Lower Division Area E: Student Enrichment and Lifelong Learning (SELF) [2]		0
Lower Division Area F: Ethnic Studies		3
American Institutions: Government and History		6
Junior Year Diversity & Reflection (JYDR)		3
Graduation Writing Assessment Requirement (GWAR)		3
Upper Division Thematic Area C and D		6
General Education Capstone		0
General Education Subtotal		*47*
Major Requirements		
MATH 2222	Introduction to Mathematical Computing	4
MATH 2510	Single Variable Calculus I	4
MATH 2520	Single Variable Calculus II	4
MATH 2610	Linear Algebra I	4
MATH 3000	Mathematical Foundations	4
MATH 3200	Probability Theory	4
MATH 3520	Analysis I	4
Applied Mathematics Concentration		
MATH 2531 & MATH 2532	Multivariable Calculus and Vector Calculus	4-6
or MATH 2533	Multivariable and Vector Calculus	
MATH 2540	Ordinary Differential Equations	4
MATH 3300	Numerical Analysis	4
MATH 3500	Complex Variables	4
MATH 3620	Abstract Algebra I	4
MATH 4610	Linear Algebra II	4
MATH 4908	Senior Seminar	4
MATH 3310	Discrete Mathematical Modeling	4
or MATH 4300	Applied Cryptography	
or MATH 4500	Partial Differential Equations	
Major Subtotal		*60-62*
Additional Units Needed Towards Graduation		**11-13**
Total Units		**118-122**

[1] A modification to the standard GE program has been approved that allows the possibility of satisfying some GE requirements through the major. MATH 1030 College Algebra and Trigonometry, Dual Credit Program, MATH 1040 Precalculus I and II Combined, MATH 1050 Precalculus I, MATH 1060 Precalculus II, MATH 2010 Calculus for the Biological and Chemical Sciences I, MATH 2020 Calculus

for Biological & Chemical Sciences II, MATH 2200 Introduction to Statistical Concepts and Methods, MATH 2310 Single Variable Calculus I for Engineers, MATH 2320 Single Variable Calculus II for Engineers, MATH 2510 Single Variable Calculus I, MATH 2520 Single Variable Calculus II, all satisfy Area B4.

[2] The SELF requirement is met by completing a Lower Division Area B, C, or D course with a SELF component.