

# MATHEMATICS, BS, PURE 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: Maureen E. Rush

Office: Science Building III, Room 228

Phone: (661) 654-3151

Email: [math@csub.edu](mailto:math@csub.edu)

[www.csub.edu/math/](http://www.csub.edu/math/) (<http://www.csub.edu/math/>)

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

## Program Requirements

Includes courses in the traditional curriculum of mathematics. This concentration prepares students for a course of graduate study leading to an advanced degree in mathematics.

Code	Title	Units
<b>General Education Requirements</b> <sup>1</sup>		
	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) <sup>2</sup>	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
	<i>General Education Subtotal</i>	<i>47</i>
<b>Major Requirements</b>		
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

*Pure Mathematics Concentration*

MATH 2531 & MATH 2532 or MATH 2533	Multivariable Calculus and Vector Calculus Multivariable and Vector Calculus	6
MATH 3400	Euclidean Geometry	4
MATH 3500	Complex Variables	4
MATH 3620	Abstract Algebra I	4
MATH 4600	Number Theory	4
MATH 4610	Linear Algebra II	4
MATH 4908	Senior Seminar	4
MATH 4520 or MATH 4620	Analysis II Abstract Algebra II	4
<i>Major Subtotal</i>		<i>62</i>
<b>Additional Units Needed Towards Graduation</b>		<b>11</b>
<b>Total Units</b>		<b>120</b>

<sup>1</sup> A modification to the standard GE program has been approved that allows the possibility of satisfying some GE requirements through the major. MATH 1030 Pre-Calculus I and II, 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.

<sup>2</sup> The SELF requirement is met by completing a Lower Division Area B, C, or D course with a SELF component.

<sup>3</sup> This selection of course can be between 4-6 units. Reach out to an advisor to check your overall units.

## Honors Option

A student may, with the approval of the Chair of the Department of Mathematics, undertake the Honors Program in Mathematics. To complete the Honors Program, a student must complete the following:

- One of the concentrations as described above.
- An additional eight hours of upper division courses in mathematics (not to include MATH 3120 Geometry, Probability, and Statistics for Preservice Elementary Teachers).
- Included in coursework described above, there must be at least one of these upper division sequences in Mathematics:

Code	Title	Units
MATH 3620 & MATH 4620	Abstract Algebra I and Abstract Algebra II	8
MATH 3520 & MATH 4520	Analysis I and Analysis II	8
MATH 2540 & MATH 4500	Ordinary Differential Equations and Partial Differential Equations	8
MATH 3200 & MATH 4200	Probability Theory and Mathematical Statistics	8

- MATH 4850 Senior Honors Thesis Senior Honors Thesis, and presentation of an Honors thesis to the Department of Mathematics.