

# MATHEMATICS, BS, TEACHING 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/>)

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[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 that give a deep understanding of the mathematics underlying the middle and high school curricula. This concentration prepares students for a career in teaching high school mathematics.

| Code   | Title  | Units |
|--|--|-------|
| <b>General Education Requirements <sup>1</sup></b> |  |       |
|  | 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) | 3     |
|  | Lower Division Area F: Ethnic Studies <sup>2</sup>                     | 0     |
|  | 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>                                      | 47    |
| <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     |
| <i>Teaching Concentration</i>                      |  |       |
| MATH 2531  | Multivariable Calculus   | 4     |
|  | or MATH 2533 Multivariable and Vector Calculus                         |       |

|   |  |            |
|---|--|------------|
| MATH 3100   | Early Field Experiences                                | 1          |
| MATH 3310   | Discrete Mathematical Modeling                         | 4          |
| MATH 3400   | Euclidean Geometry                                     | 4          |
| MATH 3600   | Modern Algebra   | 4          |
| MATH 4110   | Introduction to the History of Mathematics             | 4          |
| MATH 4120   | Modern Mathematics for Teachers                        | 4          |
| MATH 4200   | Mathematical Statistics                                | 4          |
| MATH 4918   | Senior Seminar in Mathematics for Prospective Teachers | 4          |
| <i>Major Subtotal</i>                             |  | 67         |
| <b>Additional Units Needed Towards Graduation</b> |  | <b>12</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 Precalculus I and II Combined, Dual Enrollment 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.

## 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.