

MATHEMATICS, BS, STATISTICS CONCENTRATION

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

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

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

Program Requirements

Includes courses involving the management, analysis, and interpretation of data. 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 |
| | <i>General Education Subtotal</i> | 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 |
| <i>Statistics Concentration</i> | | |
| MATH 2531 & MATH 2532 | Multivariable Calculus and Vector Calculus | 4-6 |

| | | |
|---|--|----------------|
| | or MATH 2533 Multivariable and Vector Calculus | |
| MATH 2200 | Introduction to Statistical Concepts and Methods | 4 |
| MATH 3210 | Applied Statistical Computing and Multivariate Methods | 4 |
| MATH 3620 | Abstract Algebra I | 4 |
| MATH 4200 | Mathematical Statistics | 4 |
| MATH 4210 | Regression Modeling and Analysis | 4 |
| MATH 4220 | Design and Analysis of Experiments | 4 |
| MATH 4908 | Senior Seminar | 4 |
| <i>Major Subtotal</i> | | 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.

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.