

BS Mathematics + MS Mathematics FAST Program

Note: There are no concentrations in the BS Mathematics degree, and no concentrations in the MS Mathematics degree.

Total FAST Program Units (BS + MS) 120+18 = 138

Mathematics, B.S. FAST Program (120 units)

Degree Requirements Unit-Outline

- A baccalaureate of arts degree requires a total of 120 units:
 - The math major requirements consist of 52 units;
 - General Education (GE) & Graduation Requirements (GR) consist of 52 units;
 - Free Electives may consist of 13 units (actual number of free elective units may depend on GE/GR units).

Note: It may be possible to double-count units within the graduation requirements or that a course may satisfy both a graduation requirement and a major requirement. Students should contact their program advisors for information.

Mathematics Major Requirements (55 units)

Lower Division Core

Take the following five (5) lower-division courses for 16 units:

- MATH 130 - Calculus I *Units: 4 ; Breadth Area: GE-2*
- MATH 131 - Calculus II *Units: 3*
- MATH 230 - Calculus III *Units: 3*
- MATH 215 - Introduction to Linear Algebra *Units: 3*
- MATH 285 - Introduction to Differential Equations *Units: 3*

Upper Division Core

Take the following five (5) upper-division courses for 15 units:

- MATH 300 - Introduction to Mathematical Proof *Units: 3*
- MATH 305 - Mathematical Software *Units: 3*

- MATH 320 - Abstract Algebra I *Units: 3*
- MATH 330 - Analysis I *Units: 3*
- MATH 493 - Senior Seminar *Units: 3*

Applied Mathematics Coursework

Choose two (2) courses from the following for 6 units:

- MATH 370 - Numerical Analysis I *Units: 3*
- MATH 380 - Linear Programming *Units: 3*
- MATH 385 - Linear and Nonlinear Systems of Differential Equations *Units: 3 (*)*

Theoretical Mathematics Coursework

Choose two (2) courses from the following for 6 units:

- MATH 321 - Abstract Algebra II *Units: 3 (*)*
- MATH 331 - Analysis II *Units: 3*
- MATH 340W - Modern Geometry *Units: 3; UWR (*)*

FAST Program Courses

Students must complete three (3) courses of the following for 12 units:

- MATH 620 - Graduate Algebra *Units: 4*
- MATH 630 - Real Analysis: *Units: 4*
- MATH 670 - Numerical Analysis *Units: 4*

Mathematics Teaching Pathway

The courses indicated by asterisks (*) are strongly suggested for future mathematics teachers: MATH 321, 340, 385 and either 360 or 450. These courses were designed with the 6-12 mathematics standards in mind and to meet the domain requirements for future mathematics teachers designated by the California Commission on Teacher Credentialing. These courses will help future teachers develop a deep understanding of the theoretical basis of the mathematics they will be teaching.

Other Undergraduate Degree Requirements

In addition to major requirements, every student must also complete the University's baccalaureate requirements for graduation, which are described in the Undergrad Baccalaureate & Program Requirements chapter of this catalog.

Mathematics, M.S. FAST Program (18 units)

Required Courses

Sixteen (16) units are required from the following:

The following one (1) course is required for four (4) units:

MATH 675 - Differential Equations *Units: 4*

Plus, take 3-4 courses for 12 units from the following:

MATH 610 - Mathematical Modeling *Units: 4*

MATH 621 - Topics in Applied Algebra *Units: 4*

MATH 625 - Topics in Mathematical Physics *Units: 4*

MATH 635 - Mathematical Logic *Units: 4*

MATH 640 - Complex Analysis *Units: 4*

MATH 650 - Combinatorics *Units: 4*

MATH 660 - Topology *Units: 4*

MATH 663 - Topics in Geometry *Units: 4*

MATH 665 - Differential Geometry *Units: 4*

MATH 671 - Topics in Numerical Analysis *Units: 4*

MATH 676 - Topics in Differential Equations *Units: 4*

MATH 680 - Optimization *Units: 4*

MATH 685 - Topics in Graduate Mathematics *Units: 4*

STAT 620 - Probability and Statistical Theory *Units: 4*

STAT 630 - Statistical Methods *Units: 4*

STAT 640A - Advanced Statistical Theory I *Units: 2*

STAT 640B - Advanced Statistical Theory II *Units: 2*

Capstone Requirement

The following capstone for 2 units is required to complete the program requirements:

- **MATH 692 - Graduate Mathematics Comprehensive Exam Capstone** *Units: 2*

Other Graduate & Post-Baccalaureate Degree Requirements

In addition to departmental requirements, every student must also satisfy the University requirements for graduation as described throughout this catalog. These include the 70% unit residence requirement; the five-year rule on currency of subject matter; the minimum number of units in 600-level courses; the “C” minimum grade for each graduate course; and the 3.00 grade point average in all units counted towards the degree.