MATHEMATICS (MS)

Offered at: San Luis Obispo Campus

https://math.calpoly.edu/masters-degree-program (https://math.calpoly.edu/masters-degree-program/)

The Cal Poly MS Mathematics Program is a rigorous program, providing graduates with a solid foundation in mathematics with an opportunity to gain valuable college-level teaching experience. The Applied Mathematics Specialization is a hybrid program of pure and applied mathematics, emphasizing marketable skills. Students who complete a master's degree at Cal Poly are well-prepared for jobs in industry, further graduate work at a Ph.D. institution, or teaching at a community college.

Requirements for Admission

Students apply via Cal State Apply (https://www.calstate.edu/apply/) and must submit a transcript, personal statement addressing motivation for pursuing a Math Master's at Cal Poly, and three letters of recommendation.

International Students must meet all the standard eligibility criteria and demonstrate proficiency in English (English Proficiency Exam Requirements (https://www.calpoly.edu/admissions/international-student/selection-criteria/english-exam-requirements/))

Prerequisites: Strong foundation in undergraduate mathematics, including but not limited to algebra and analysis.

Minimum GPA: above 3.0 recommended in math courses.

Application due date: Fall enrollment only. Please see Graduate Student Dates and Deadlines (https://www.calpoly.edu/admissions/graduate-student/dates-and-deadlines/) for application deadlines.

Advancement to candidacy

Completion of at least 6 units of graduate coursework with cumulative and higher ed GPA of 3.0 or higher and an approved culminating experience proposal.

Culminating experience

Complete one of the following:

- **Oral Exam Option:** The oral exam covers topics from three of the required graduate course topics from the required curriculum. Students may select any three of:
  - Real Analysis (MATH 5266)
  - Linear Algebra and Module Theory (MATH 5203)
  - Discrete mathematics (MATH 5053)
  - Applied Complex Analysis (MATH 5302)
  - Methods of Applied Mathematics (MATH 5371)
  - Topology (MATH 5542)

  One of the three topics must be either Real Analysis or Linear Algebra and Module Theory. The professors who taught these courses will comprise the oral exam committee. For each topic, students begin with a 10-15 minute presentation on a key topic from that course followed by approximately 45 minutes of questions from your committee.
- **Thesis Option:** Along with a faculty advisor, students will work on a specific research topic, preparing a written thesis and presenting to the public as a 45-minute defense, after which a three-person committee will have the opportunity to privately ask related questions.

Specializations

Applied Mathematics

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The Cal Poly's Blended BS/MS Mathematics Program provides advanced Cal Poly undergraduate students with an efficient way to complete a BS and MS in mathematics with both degrees being conferred simultaneously. Students are provided with ample advising so that there is a seamless transition from undergraduate to graduate status.

Blended options

BS Mathematics + MS Mathematics

Units Double Counted

0 units are double counted.

Requirements for Admission for the Blended Program

Students apply directly to the program and not through Cal State Apply; please contact the department graduate coordinator (https://grad.calpoly.edu/about/coordinators.html).

- Prerequisites: Strong grades in MATH 3152 and either MATH 4201 or MATH 4264
- Minimum GPA: 3.0
- Timeline for admission: Admissions is rolling and an applicant should apply soon after completion of either MATH 4201 and MATH 4264, whichever is taken earlier, and before their final undergraduate year.
- Application materials: three letters of recommendation from math professors and a statement of purpose sent to mathgradprogram@calpoly.edu; fill out this application form (https://adobesign.calpoly.edu/PowerForm/3AAABLblqZhBouGg7vmJEtj4lMmouYYIDJPDN_qdRCq8rlCnsGdkBGTf3NJgHsmeNYfPplgikg78haGkw0QqSf5Z-QCR_-sH7/).

Program Learning Objectives

1. Demonstrate a high level of overall mathematical knowledge in the traditional areas of advanced mathematics, such as algebra, analysis, topology, and discrete mathematics.
2. Apply mathematical knowledge in new settings.
3. Produce detailed, rigorous, and correct proofs.
4. Communicate effectively in oral and written forms.
5. Foster global citizenship by developing critical thinking skills.

Code	Title	Units
REQUIRED COURSES		
MATH 5041	Transition to Graduate Mathematics [1]	3
MATH 5053	Discrete Mathematics	3
MATH 5203	Linear Algebra and Module Theory	3
MATH 5266	Real Analysis	3
MATH 5302	Applied Complex Analysis	3
MATH 5597	Comprehensive Examination [2]	0-5
or MATH 5599	Thesis	
MATH 5971	Graduate Teaching Seminar	1
Required Elective Courses		
MATH 5204	Algebra	3
MATH 5542	Topology	3
Approved Electives		
Select from the following: [1, 2, 3]		3-8
MATH 4052	Combinatorics II	
MATH 4201	Abstract Algebra I	
MATH 4202	Abstract Algebra II	
MATH 4264	Real Analysis I	
MATH 4265	Real Analysis II	
MATH 4342	Nonlinear Dynamical Systems	
MATH 4352	Partial Differential Equations	
MATH 4512	Non-Euclidean Geometry	
MATH 4531	Differential Geometry	
MATH 4541	Introduction to Topology	
MATH 4652	Numerical Differential Equations	
MATH 4653	Numerical Optimization	
MATH 4911	Game Theory	
MATH 4981	Advanced Topics in Mathematics	
MATH 4982	Advanced Topics in Applied Mathematics	
MATH 5371	Methods of Applied Mathematics	
MATH 5500	Individual Study	

MATH 5651	Numerical Analysis	
Total Units		**30**

1 Passing both the algebra and the real analysis qualifying exams before the fall of your first year of graduate school will waive MATH 5041.
2 The culminating experience must be met in one of two ways. For the Thesis route, up to 5 units of MATH 5599 may be taken. For the comprehensive exam route, MATH 5597 must be taken.
3 At least 60% of all units required in the program must be at the 5000 level.

Specializations

Applied Mathematics

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Required Specialization Courses		
MATH 4982	Advanced Topics in Applied Mathematics	3
MATH 5371	Methods of Applied Mathematics	3
MATH 5651	Numerical Analysis	3
Approved Electives [1, 2, 3]		
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