

POLYMERS AND COATINGS SCIENCE (MS)

Offered at: San Luis Obispo Campus

<https://chemistry.calpoly.edu/content/academics/graduate-program>

The M.S. program in Polymers and Coatings Science offers a distinctive curriculum with strong industry integration. Students gain academic preparation in polymers and coatings science through lecture and laboratory courses, followed by a rigorous industrial internship or industry-sponsored research. While on the internship, students specialize in targeted areas and develop advanced skills through directed study along with their fieldwork. The program is designed to efficiently prepare students for challenging careers in the polymers and coatings industry. The program also provides a solid foundation for doctoral studies in areas related to disciplines. This program is unique in California and relies on the strong partnerships between the department and the polymers and coatings industry for its success.

Requirements for Admission

Students apply via Cal State Apply (<https://www.calstate.edu/apply/>) and must submit an official transcript, curriculum vitae, personal statement describing motivation for pursuing the M.S. in Polymers and Coatings Science, and three letters of recommendation.

International Students must meet all the standard eligibility criteria and demonstrate proficiency in English (English Proficiency Exam Requirements)

Prerequisites: Bachelor's degree in chemistry or biochemistry or materials engineering or a closely related field with strong foundation in undergraduate coursework in organic chemistry and physical chemistry. Applicants with relevant work experience or equivalent coursework may be considered for conditional acceptance. Conditionally accepted students will be required to take organic chemistry and/or physical chemistry at the discretion of the MS program coordinator.

Minimum GPA: a minimum of 2.5

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

Culminating Experience

Complete one of the following:

- **Project Option:** This is a supervised graduate-level industrial internship. Students will participate in research and development activities at an approved industry site. They are required to provide regular progress updates to their graduate faculty advisor and deliver a formal report and seminar summarizing their work each semester. Throughout the internship, students will work on preparing a written thesis and presenting a 30–40-minute oral defense, presented to the graduate faculty advisor and attended by the industrial project supervisor. Following the presentation, the graduate faculty advisor and the industrial project supervisor will have the opportunity to ask questions related to the project.
- **Thesis Option:** Along with a faculty advisor, students will work on a specific research topic, preparing a written thesis and presenting a 30-40 minute public defense, after which a three-person committee will have the opportunity to hold a private session to ask questions related to the research.

The Blended BS/MS Program in Polymers and Coatings Science offers advanced Cal Poly undergraduate students an efficient way to earn both a bachelor's and master's degrees, with both degrees awarded simultaneously. Students collaborate closely with their Graduate Coordinator and faculty advisor to ensure a smooth transition from undergraduate to graduate studies. The program offers two completion options: a project-based or thesis-based track.

Blended options

BS Chemistry + MS Polymers and Coatings Science

BS Biochemistry + MS Polymers and Coatings Science

BS Materials Engineering + MS Polymers and Coatings Science

Units Double Counted

A maximum of 12 semester units of 5000-level graduate coursework can be double counted towards undergraduate degree requirements. Graduate coursework can replace 4000-level specific undergraduate coursework in advanced chemistry concentration coursework or MATE electives.

Requirements for Admission to 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: must be current BS students in Chemistry or Biochemistry or Materials Engineering. Students must have completed all lower division classes and the GWR prior to transition to graduate status.
- Minimum GPA: 3.0 or a qualifying exam for admission with a GPA below 3.0
- Timeline for admission: The Blended MS program has admission fall semester only. Students cannot apply for the term they will complete their undergraduate program (e.g., Students scheduled to complete their undergraduate program in Spring should apply early in Fall semester). Please see specific deadlines (<https://chemistry.calpoly.edu/content/academics/graduate-program/>) for more details.
- Application materials: a statement of purpose outlining the personal goals of graduate study, along with contact information for three references who will provide letters of recommendation.

Program Learning Objectives

1. Integrate and apply interdisciplinary technical and conceptual knowledge.
2. Demonstrate problem solving skills.
3. Demonstrate an understanding and proficiency in research related to polymer science.
4. Effectively communicate as professionals in both individual and team-based environments.
5. Understanding of professional development and professional conduct.
6. Define and describe issues related to diversity, equity, and inclusion within the context of the Polymers and Coatings Industry and the larger area of chemical sciences.

Code	Title	Units
REQUIRED COURSES		
CHEM 5502	Graduate Seminar in Polymers and Coatings	2
CHEM 5580	Advanced Polymer Synthesis and Characterization	3
CHEM 5581	Advanced Polymer Synthesis and Characterization Laboratory	2
CHEM 5582	Advanced Coatings and Formulations	3
CHEM 5583	Advanced Coatings and Formulations Laboratory	2
Culminating Experience		
CHEM 5598 or CHEM 5599	Project Thesis	6
Approved Electives		
Select from the following:		12
CHEM 4415	College Teaching Practicum	
CHEM 4461	Senior Project I	
CHEM 4484	Functional Polymeric Materials	
CHEM 4485	Cooperative Education Experience ¹	
CHEM 4486	Surface Chemistry of Materials	
CHEM 4487	Polymers and Coatings Internship	
CHEM 4495	Cooperative Education Experience ¹	
CHEM 5500	Special Problems for Graduate Students	
CHEM 5570	Special Advanced Topics	
CHEM 5571	Special Advanced Laboratory	
MATE 4420	Biotechnology for Sustainable Materials	
STAT 5110	Introductory Statistics for Graduate Students	
Total Units		30

¹ Maximum of 2 combined units may be applied to the degree from the following courses: CHEM 4485 and CHEM 4495.