MASTER OF SCIENCE DEGREE IN POLYMERS AND COATINGS SCIENCE

2007-09 Cal Poly Catalog
Chemistry & Biochemistry Department
Faculty Offices East Bldg. (25), Room 125B (805) 756-2693

General Characteristics
A pilot program, the MS in Polymers and Coatings Science offers a unique, focused program closely tied to industry. Students gain academic preparation in polymers and coatings science through lecture and laboratory courses, then undertake a rigorous industrial internship. While on the internship students specialize and develop advanced skills through directed study in areas related to their internship work. The program is designed to prepare students for challenging careers in the polymers and coatings industry. The program also provides excellent background for doctoral studies in areas related to polymer and coatings science. This program is unique in California and relies on the close relationship between the department and the polymers and coatings industry for its success.

Prerequisites
Students entering the program must have a bachelor's degree from an accredited institution with a minimum grade point average of 2.5 in the last 90 quarter units attempted. Applicants with majors in chemistry, biochemistry, materials engineering, chemical engineering or related fields generally meet the prerequisites for courses in the program. Applicants with degrees in other areas may need to take supplemental courses in organic and physical chemistry and can be admitted conditionally. For information concerning additional departmental requirements, the student should contact the Graduate Advisor in the Chemistry and Biochemistry Department.

Advancement to candidacy requires completion of 12 units of an approved study plan with a minimum grade point average of 3.0.

Blended BS + MS Program in Chemistry or Biochemistry (BS) and Polymers and Coatings Science (MS)
The blended program provides motivated students with an accelerated route to the MS in Polymers and Coatings Science, with simultaneous conferring of both bachelor's and master's degrees. Students in the blended program are provided with a seamless process whereby they can progress from undergraduate to graduate status.

Eligibility
Students majoring in chemistry or biochemistry may be eligible to pursue the blended program toward the MS in Polymers and Coatings Science. Participation in the program is based on prior academic performance and other measures of professional promise, with a minimum GPA of 2.5 required (3.0 recommended). Students are generally selected for the blended program by a faculty committee during the junior year. Please see the catalog description on Blended Programs for eligibility criteria.

Students may begin taking the required graduate courses in either their junior or senior year depending on their preparation. Students may not pursue both the Concentration in Polymers and Coatings and the MS in Polymers and Coatings Science. Students pursuing the concentration take the 400-level polymers and coatings courses while those pursuing the MS degree take the 500-level polymers and coatings courses. Students cannot receive credit for both 400 and 500-level courses in the same topic.

Students in the blended program are eligible to apply for the Graduate Internship upon completion of the required graduate-level chemistry courses.

Units

Required courses ......................................................... 33
CHEM 544 Polymer Physical Chemistry and Analysis (3)
CHEM 545 Polymer Synthesis and Mechanisms (3)
CHEM 547 Polymer Characterization and Analysis Laboratory (2)
CHEM 548 Polymer Synthesis Laboratory (2)
CHEM 550 Coatings Formulation Principles (3)
CHEM 551 Coatings Formulation Laboratory (2)
CHEM 570 Directed Graduate Study (3 units per quarter for 3 quarters)
CHEM 598 Graduate Internship (3 units per quarter for 3 quarters)

Restricted Electives ................................................... 12
12 units approved electives (400-500 level) chosen from: CHEM, MATE, Bioengineering, STAT 512 or STAT 513.
Examples of courses satisfying the elective requirement include:
CHEM 405 Advanced Physical Chemistry (3)
CHEM 420 Advanced Organic Chemistry (3)
CHEM 439 Instrumental Analysis (5)
CHEM 446 Surface Chemistry of Materials (3)
CHEM 470 Selected Advanced Topics (1-4)
MATE 530 Biomaterials (4)
MATE 560 Thin Film Processing (3)
ENGR 450 Special Topics in Bioengineering (4)
IME 556 Technological Project Management (4)
or other approved management course
Satisfactorily complete the comprehensive examinations.