

BACHELOR OF SCIENCE IN CHEMISTRY

In pursuing a [Bachelor of Science in Chemistry](#), students first receive a strong foundation in analytical, physical, organic and inorganic chemistry before selecting one of three options leading to the degree: biochemistry and natural products, environmental chemistry, and natural and synthetic polymer chemistry.

Each option offers an advanced course of studies beyond the basic courses of the classical undergraduate chemistry curriculum. All options are excellent grounding for professional work at the B.S. level or for advanced graduate study.

Biochemistry and Organic Chemistry of Natural Products

This option stresses a chemical approach to problems in life and health sciences. Students take advanced courses in natural products chemistry, chemical analysis, and biochemistry. Professional electives in physiology, chemical ecology, genetics and molecular biology strengthen connections in the life and health sciences.

Research areas include the elucidation of chemical signals by which organisms communicate with each other, the role of trace metals in the growth of microorganisms, the origin and function of biologically active natural compounds, and synthetic biology and metabolic engineering for the production of value-added products and antimicrobial compounds.

Environmental Chemistry

Environmental chemistry stresses applications of fundamental chemical principles to describe and predict behavior of chemicals in the environment. After obtaining a strong foundation in analytical, physical and organic chemistry, students pursue advanced study in air and water chemistry.

Professional Electives provide students with exposures to environmental topics in health, engineering, biology and sustainability. The senior year culminates in a senior research project undertaken under the supervision of one of the chemistry faculty. This gives students the opportunity to experience research ranging from laboratory work to field-intensive studies.

Natural and Synthetic Polymer Chemistry

Students take advanced courses in mechanisms of polymerization and polymer synthesis, physical properties and characterization of polymers, and laboratory techniques of polymer synthesis and characterization. Special topics courses in contemporary polymer and material science are available as electives. In addition, courses in carbohydrate chemistry provide a solid background for chemists planning careers in paper, plastic, high-tech, energy, membranes, and related areas. Biochemistry is an appropriate elective for students interested in the growth of biotechnologies while environmental chemistry complements this program for students interested in working on problems of biodegradation.

Lower Division Required Courses
APM 205

APM 206

EFB 102

EFB 103

EFB 104

ESF 200

EWP 190

EWP 290

FCH 132

FCH 232

FCH 150

FCH 151

FCH 152

FCH 153

FCH 221

FCH 222

FCH 223

FCH 224

EPH 201

EPH 202

EPH 203

EPH 204

Lower Division Electives

Course	Codes*	Credits
Math Elective (Calculus III [APM307] OR Statistics [APM210])		
Free Elective		

General Education Course in two of the following categories: US History & Civic Engagement, The Arts, Social Sciences, World History and Global Awareness, World Languages	G	6
General Education Course in Diversity, Equity, Inclusion and Social Justice	G	3

Upper Division Required Courses
EWP 220

FCH 325

FCH 360

FCH 361

FCH 380

FCH 381

FCH 382

FCH 410

FCH 495

FCH 497

FCH 498

Note: 5 credits of FCH 498 are required

Upper Division Required Courses

Course	Codes*	Credits
Professional Electives allow students to explore interests in a wide range of areas, including biology, chemistry, ecology, forestry, environmental law, mathematics, geology, physics, biophysics, and		

various engineering disciplines. Professional Electives are typically 300-level and above.		
Electives		

Upper Division Option Area Required Courses

Biochemistry and Natural Products Option

FCH 430

OR

FCH 530

FCH 431

OR

FCH 531

FCH 432

OR

FCH 532

Environmental Chemistry Option

FCH 510

FCH 511

FCH 515

Natural and Synthetic Polymer Chemistry Option

FCH 550

FCH 551

FCH 552

Total Minimum Credits for Degree: 121