Chemistry and Biochemistry
Bachelor of Science in Chemistry or Biochemistry

Why Should I Major in Chemistry or Biochemistry at Seton Hall?

As a major in chemistry or biochemistry at Seton Hall University, students have the opportunity to receive individual attention from faculty, gain extensive laboratory experience and work closely with faculty in modern laboratories. The student-faculty ratio is less than 6:1 for those majoring in chemistry or biochemistry. Undergraduate research is encouraged, and many students have presented their results at local and national meetings, a valuable professional experience. A chapter of Student Affiliates of the American Chemical Society is active in the Department of Chemistry and Biochemistry, and sponsors a variety of scientific, professional and social activities. The Student Affiliates have organized trips to national scientific meetings, arranged for outside speakers, provided tutoring services within the department and sponsored trips to local research labs. In addition, the Chemistry Honors Program, which is open by invitation only, provides the exceptional student with further opportunities to work with the faculty. The culmination of the Chemistry Honors Program is a senior thesis and graduation with honors.

The Curriculum:

Programs in the Department of Chemistry and Biochemistry lead to the B.S. in Chemistry (ACS-Certified), the B.S. in Chemistry (non-ACS Certified) and the B.S. in Biochemistry. The B.S. in Chemistry with American Chemical Society Certification is a rigorous program intended for students looking to pursue graduate studies or prepare for a career as a chemist. The B.S. in Chemistry (non-ACS certified) is a more flexible program, generally chosen by students pursuing careers in chemistry-related fields, such as environmental science, medicine and allied health professions. The B.S. in Biochemistry combines courses in chemistry and biology and is designed for students pursuing advanced training in biochemistry, medicine and health professions. A five-year dual-degree program is also jointly offered with New Jersey Institute of Technology (NJIT) and leads to a B.S. in Chemistry from Seton Hall University and a B.S. in Chemical Engineering from NJIT.

What Does It Take to Graduate?

All of the programs in chemistry and biochemistry are grounded in the fundamentals of general and organic chemistry, generally taken in the freshman and sophomore years. A year of physics and mathematics (through at least Calculus II) is also required. In the junior and senior years, rigorous coursework in advanced chemistry courses, electives and research is undertaken.

Career Opportunities:

Internship and career opportunities for chemistry majors can be found in research, development, quality assurance laboratories, clinical and forensic laboratories, environmental testing, pharmaceuticals, agricultural products and other scientific enterprises. A chemistry background is useful for non-technical employment with companies in chemically related fields. Our graduates are broadly trained in the different disciplines of chemistry, and are well prepared for both future careers and graduate education. Chemistry and biochemistry graduates are prepared for careers at the highest levels of chemistry and scientific study and research. Our graduates have readily found work at the best chemical and pharmaceutical companies, including Merck, Schering Plough, Johnson & Johnson, Kraft Foods and Pfizer. Students who complete the major in chemistry at Seton Hall have an excellent record for attending respected graduate schools.

How Do I Apply for Admission?

Complete your application to Seton Hall University and include the $55 non-refundable application fee ($45 if applying online). Freshman applicants must submit official high school transcripts and any college or university transcripts where credit was attempted, plus the results of the SAT or ACT assessments. Transfer students must submit transcripts from each college or university where credit was attempted. Those with fewer than 24 earned credits must complete the freshman requirements. Applications are available at admissions.shu.edu.

Can I Get Financial Aid?

Almost 90 percent of the students who entered Seton Hall last year received some form of financial aid, and 75 percent of these students received money directly from the University. The four types of financial aid include scholarships, grants and discounts, loans, and part-time jobs on campus. For further information, visit admissions.shu.edu/FinancialAid.htm or call (973) 761-9332.
Chemistry and Biochemistry Requirements:

Core Curriculum Requirements*
A. English Language (6 credits)
B. Communication (3 credits)
C. Mathematics (3 credits and prerequisites)
D. Natural Sciences (6 credits) and Behavioral Sciences (6 credits)
E. Western Civilization (6 credits), Foreign Language (6 credits) and American/African, Asian and Latino Civilizations/Foreign Literature/Advanced Language (6 credits)
F. Ethical Questions (3 credits)
G. Philosophy and Religious Studies (9 credits)
* Please see Undergraduate Catalogue

B.S. in Chemistry (ACS Certified) – 71 hours, including:

Freshman Year
CHEM 1107-1108 Principles of Chemistry I-II
MATH 1401-1411 Calculus I-II

Sophomore Year
CHEM 2313-2314 Organic Chemistry I-II
PHYS 1705-1706 Physics I-II
PHYS 1815-1816 Physics Laboratory I-II
MATH 2411 Calculus III
PHYS 2112 Physical Applications of Mathematical Techniques

Junior Year
CHEM 2215-2216 Analytical Chemistry I-II
CHEM 3411-3412 Physical Chemistry I-II

Senior Year
CHEM 3611 Inorganic Chemistry
CHEM 4601 General Biochemistry I
CHEM 4891-4894 Chemistry Research
Two electives from biology, chemistry, physics or mathematics and computer science

B.S. in Biochemistry – 45-54 hours, including:

Freshman Year
CHEM 1125-1126 and 1125-1126 General Chemistry I-II or
CHEM 1107-1108 Principles of Chemistry I-II
MATH 1401-1411 Calculus I-II
BIOL 1201-1202 General Biology I-II

Sophomore Year
CHEM 2321-2322 and 2315-2316 Organic Chemistry I-II
BIOL 2211 Genetics
Elective from biology, chemistry, physics or mathematics and computer science

Junior Year
CHEM 2215 Analytical Chemistry I
CHEM 3512 Elements of Biochemistry
PHYS 1705-1706 Physics I-II
PHYS 1815-1816 Physics Laboratory I-II

Senior Year
CHEM 3411 Physical Chemistry I
Select one of the following:
BIOL 3323 Metabolic Pathways
BIOL 2221 Cell Biology
BIOL 3411 Microbiology
BIOL 3254 Molecular Biology
Elective from biology, chemistry, physics or mathematics and computer science

Chemistry Minor – 22-23 hours, including:

CHEM 1125-1126 and 1125-1126 General Chemistry I-II or
CHEM 1107-1108 Principles of Chemistry I-II
CHEM 2321-2322 and 2315-2316 Organic Chemistry I-II
Two additional courses with catalogue numbers above CHEM 2000

Degree Requirements: 130 total credit hours
Students can minor or double major in any of the College of Arts and Sciences disciplines.

For more information, call an admissions counselor at 1-800-THE-HALL, send an e-mail to thehall@shu.edu or visit admissions.shu.edu.

To talk to a faculty adviser, please contact Nicholas Snow, Ph.D., chair of the Department of Chemistry and Biochemistry, at chemistry@shu.edu or (973) 761-9414. Web site: artsci.shu.edu/chemistry

Seton Hall University is a major Catholic university. In a diverse and collaborative environment it focuses on academic and ethical development. Seton Hall students are prepared to be leaders in their professional and community lives in a global society and are challenged by outstanding faculty in an evolving technologically advanced setting and values-centered curricula.

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