Research Opportunities

The Department of Chemistry at Stony Brook offers a wide range of research opportunities including cutting edge research in materials chemistry, computational biology, and pharmaceutical development, which complement our traditionally strong areas of organic, inorganic, biological and physical chemistry. The department is involved in many collaborative research projects with scientists at other area institutions including Brookhaven National Lab, the Rockefeller University, and the Sloan-Kettering Cancer Center. As a result of our large faculty and diverse research interests, undergraduate students are likely to find a research environment that suits their interests and pushes them to excel.

Five-year BS / MS

A five-year program for the completion of both the BS and MS degrees. Graduate courses are completed in the fourth year and the fifth year is research intensive. Students are required to prepare and defend a thesis. Students wishing to pursue the combined program are required to apply and select a research advisor in their junior year.
Program Options:

Students who wish to complete the Bachelor of Science (B.S.) degree in Chemistry must elect one of five program options (Chemical Science, Biological Science, Chemical Physics, Environmental Chemistry or Marine and Atmospheric Chemistry). All of the options feature a common core of basic introductory chemistry, physics and mathematics courses, combined with additional courses unique to each option. Separate outlines of each option appear on the Department of Chemistry website:

www.stonybrook.edu/chemistry.

Requirements for the Major (B.S. Degree)

All of the courses used to fulfill the requirements of the major must be passed with a grade of C or higher, with the exception of three courses, for which the grade may be C-. Please keep in mind that some courses are offered in the fall and some in spring. Few are offered in the summer term. F=Fall  Sp=Spring  E=Either Semester

A. Core Requirements

1. CHE 131, CHE 132 General Chemistry I, II, or CHE 152 Molecular Science I (131/132 E)
2. CHE 133, CHE 134 General Chemistry Labs I, II, or CHE 154 Molecular Science Laboratory I
3. CHE 301, CHE 302 Physical Chemistry I, II
4. CHE 303 Solution Chemistry Laboratory (F)
5. CHE 321, CHE 322 Organic Chemistry I, II, or CHE 331, CHE 332 Molecular Science II, III
6. CHE 375 Inorganic Chemistry I (E)
7. CHE 327 Organic Chemistry Laboratory (E), or CHE 383 Introductory Synthetic and Spectroscopic Laboratory Techniques
8. CHE 385 Tools of Chemistry (E)
9. MAT 131, MAT 132 Calculus I, II
10. MAT 211 Introduction to Linear Algebra or AMS 210 Applied Linear Algebra
11. PHY 131/PHY 133, PHY 132/PHY 134 Classical Physics I, II plus labs

B. Area Requirements

► Chemical Science Option
   »CHE 304 Chemical Instrumentation Laboratory
   »CHE 357 Molecular Structure and Spectroscopy Laboratory (F)
   »CHE 328 Synthetic and Spectroscopic Laboratory Techniques or CHE 384 Intermediate Synthetic and Spectroscopic Laboratory Techniques
   »CHE 487 Research in Chemistry (3 credits E) or CHE 495-496 Senior Research (F + Sp)
   »Two electives chosen from CHE 345/461, CHE 346/461, CHE 348/461, CHE 351, CHE 353, CHE 358, CHE 376, CHE 378, PHY 251, or ESG 281

► Biological Chemistry Option
   »CHE 328 Synthetic and Spectroscopic Laboratory Techniques or CHE 384 Intermediate Synthetic and Spectroscopic Laboratory Techniques
   »CHE 351 Organic Chemistry Laboratory (F)
   »CHE 357 Molecular Structure and Spectroscopy Laboratory (F)
   »CHE 376, CHE 378, PHY 251, or ESG 281
   »CHE 384 Quantum Chemistry or CHE 383 Chemical Thermodynamics
   »CHE 357 Molecular Structure and Spectroscopy Laboratory (F)
   »CHE 487 Research in Chemistry (3 credits E) or CHE 495-496 Senior Research (F + Sp)
   »Two electives chosen from CHE 345/461, CHE 346/461, CHE 348/461, CHE 351, CHE 353, CHE 358, CHE 376, CHE 378, PHY 251, or ESG 281

► Chemical Physics Option
   »CHE 304 Chemical Instrumentation Laboratory
   »CHE 357 Molecular Structure and Spectroscopy Laboratory (F)
   »CHE 385 Tools of Chemistry (E)
   »CHE 386 Chemical Instrumentation Laboratory
   »CHE 357 Molecular Structure and Spectroscopy Laboratory (F)
   »MAT 203 Calculus III with applications or MAT 303 Calculus IV

For information on the B.A. degree in chemistry and for possible math and physics course substitutions see www.stonybrook.edu/chemistry.