

## 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 Chemistry, 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](http://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

### One of the following options:

#### B. Area Requirements

- ▶ Chemical Science Option  
CHE 304 Chemical Instrumentation Laboratory  
CHE 357 Molecular Structure and Spectroscopy Laboratory (F)  
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 379, CHE 378, PHY 251, or ESG 281
- ▶ Biological Chemistry Option  
CHE 384 Intermediate Synthetic and Spectroscopic Laboratory Techniques  
One organic or inorganic chemistry elective chosen from CHE 345/461, CHE 346/461, CHE 348/461, CHE 376, CHE 378, or CHE 495-496  
BIO 202 Fundamentals of Biology: Molecular and Cellular Biology  
CHE 346 /461 (recommended) or BIO 361 Biochemistry I (F)  
BIO 310 Cell Biology or BIO 362 Biochemistry II
- ▶ Chemical Physics Option  
CHE 304 Chemical Instrumentation Laboratory  
CHE 351 Quantum Chemistry or CHE 353 Chemical Thermodynamics  
CHE 357 Molecular Structure and Spectroscopy Laboratory (F)

MAT 203 Calculus III with applications or MAT 303 Calculus IV  
PHY 251/PHY 252 Modern Physics and Laboratory

One elective chosen from CHE 358, PHY 277, PHY 300, PHY 301, PHY 303, PHY 306, PHY 307

- ▶ Environmental Chemistry Option  
CHE 304 Chemical Instrumentation Laboratory (Sp)  
CHE 310 Chemistry in Technology and the Environment (F)  
CHE 357 Molecular Structure and Spectroscopy Laboratory (F) or ENV 321 Chemistry for Environmental Science Laboratory (F)  
CHE 384 Intermediate Synthetic and Spectroscopic Laboratory Techniques  
BIO 201 Fundamentals of Biology: Organisms to Ecosystems or BIO 113 Applied Ecology  
ATM 397 Air Pollution and Its Control
- ▶ Marine and Atmospheric Chemistry Option  
ATM 205 Introduction to Atmospheric Sciences  
MAR 308 Principles of Instrumental Analysis  
MAR 333 Coastal Oceanography  
MAR 351 Introduction to Ocean Chemistry  
Two electives chosen from: MAR 301, MAT 302, MAR 334, MAR 336, MAR 394, ATM 305, ATM 345, ATM 397

**For information on the B.A. degree in chemistry and for possible math and physics course substitutions see [www.stonybrook.edu/chemistry](http://www.stonybrook.edu/chemistry).**





## Department of Chemistry

### 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.

**Department of Chemistry  
Stony Brook University  
Stony Brook, New York  
11794-3400  
631-632-7880**

**Professor Dale Drueckhammer  
Undergraduate Program Director  
Dale.Drueckhammer@stonybrook.edu**

**Katherine Hughes  
Student Affairs Coordinator  
Katherine.Hughes@stonybrook.edu**

**Lizandia Perez  
Undergraduate Program Secretary  
Lizandia.Perez@stonybrook.edu**

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### Which Chemistry is right for you? Why Choose Chemistry?

Often referred to as the central science, chemistry is a rich academic discipline, with vibrant interfaces with biology, geology, physics and math. This central position allows chemists to explore many of the vibrant scientific and technological questions that confront society. As a result, our chemistry graduates have gone on to excel in academic, medical, industrial and policy-making positions.

The Department of Chemistry is recognized as being one of the top-ranked departments in the nation.

Our faculty have received some of the most prestigious awards in teaching, research and service.

The department has initiated several cutting-edge research institutes, including the Institute of Chemical Biology and Drug Discovery, the Center for Environmental Molecular Science, and the Northeastern Chemical Energy Storage Center.

