

Sample Four-Year Degree Plan
B.S. CHEMISTRY

The State University of New York at Fredonia is committed to doing our part to provide each student a clear path to graduation. This four-year degree plan is a sample map for fulfilling requirements in the major, the College Core Curriculum (CCC), and other supporting courses. The pathway that you take to your degree may differ somewhat from this illustration, depending on where you start and the detours and side trips you may take along the way. If you are committed to completing your degree in four years, we encourage you to consider signing up for the Fredonia in 4 program. For complete information about this degree program, please consult the university catalog at fredonia.smartcatalogiq.com

| FIRST YEAR | | | | | |
|---------------|-------------------------|--------------|-----------------|------------------------------|--------------|
| Fall Semester | | | Spring Semester | | |
| Course | | Credits | Course | | Credits |
| CHEM 115 | General Chemistry I | 3 | CHEM 116 | General Chemistry Lecture II | 3 |
| CHEM 125 | General Chemistry Lab I | 1 | CHEM 126 | General Chemistry Lab II | 1 |
| MATH 122 | University Calculus I | 4 | MATH 123 | University Calculus II | 4 |
| ENGL 100 | English Composition | 3 | PHYS 230 | University Physics I | 4 |
| CCC | American History | 3 | PHYS 232 | University Physics Lab I | 1 |
| CHEM 100 | Freshman Seminar | 1 | CCC | Humanities | 3 |
| | | TOTAL | | | TOTAL |
| | | 15 | | | 16 |

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The B.S. Chemistry degree satisfies the curriculum requirements of the American Chemical Society (ACS) and is recommended for students interested in graduate or professional schools.

| SECOND YEAR | | | | | |
|---------------|-----------------------------|--------------|-----------------|------------------------------|--------------|
| Fall Semester | | | Spring Semester | | |
| Course | | Credits | Course | | Credits |
| CHEM 215 | Organic Chemistry Lecture I | 3 | CHEM 216 | Organic Chemistry Lecture II | 3 |
| CHEM 225 | Organic Chemistry Lab I | 1 | CHEM 226 | Organic Chemistry Lab II | 1 |
| | Optional MATH Elective | 4 | CHEM 317 | Analytical Chemistry I | 3 |
| PHYS 231 | University Physics II | 3 | CHEM 327 | Analytical Chemistry Lab I | 1 |
| PHYS 233 | University Physics Lab II | 1 | CHEM 295 | Introduction to Research | 1 |
| CCC | Foreign Language | 3 | CCC | Social Science | 3 |
| | | | | General Elective | 3 |
| | | TOTAL | | | TOTAL |
| | | 15 | | | 15 |

| THIRD YEAR | | | | | |
|---------------|---|--------------|-----------------|------------------------------------|--------------|
| Fall Semester | | | Spring Semester | | |
| Course | | Credits | Course | | Credits |
| CHEM 315 | Introduction to Physical Chemistry | 3 | CHEM 316 | Advanced Physical Chemistry | 3 |
| CHEM 325 | Physical Chemistry Lab I | 1 | CHEM 326 | Physical Chemistry Lab II | 1 |
| CHEM 318 | Analytical Chemistry, Instrumental Analysis | 3 | CHEM 462 | Inorganic Chemistry | 3 |
| CHEM 328 | Analytical Chemistry, Instrumental Analysis Lab | 2 | CHEM 472 | Inorganic Chemistry Lab (Optional) | 1 |
| CHEM 4xx | | 3 | CCC | Western Civilization | 3 |
| CCC | Other World Civilizations | 3 | CCC | Art | 3 |
| | | TOTAL | | | TOTAL |
| | | 15 | | | 14 |

| FOURTH YEAR | | | | | |
|------------------|-----------------------------|--------------|-----------------|------------------------------|--------------------|
| Fall Semester | | | Spring Semester | | |
| Course | | Credits | Course | | Credits |
| CHEM 333 | Biochemistry (optional) | 3 | | General Elective or Research | 3 |
| CHEM 334 | Biochemistry Lab (optional) | 1 | | General Elective | 3 |
| CHEM 495 | Chemistry Seminar | 1 | CHEM 495 | Chemistry Seminar | 1 |
| | CHEM Major Elective | 3 | | CHEM Major Elective | 3 |
| CCC | Social Science | 3 | | General Elective | 3 |
| | Research | 3 | | General Elective | 3 |
| | | TOTAL | | | TOTAL |
| | | 15 | | | 15 |
| 2016-2017 | | | | | GRAND TOTAL |
| | | | | | 120 |

fredonia.edu

Why Study the Natural Sciences at Fredonia?

The Natural Sciences at Fredonia encompass state of the art programs in pure and applied sciences that prepare you well for graduate school and professional careers. Each program gives you the opportunity to engage in meaningful research in collaboration with the faculty.

Choose from a variety of disciplines

- Mathematical Sciences offer programs in pure and applied mathematics, as well as certification programs in mathematics education.
- Computer and Information Sciences have multiple programs including those in software development, systems management and cooperative computer engineering.
- Biology houses programs in Biology, Medical Technology, Molecular Genetics, Exercise Science and Biology Adolescence Education.
- The Department of Chemistry and Biochemistry offers programs approved by the premier accreditor, The American Chemical Society, as well as certification program in Adolescence Chemistry Education.



- Programs in the Physics Department include several concentrations in Physics (including Physics Education), as well as being the home for most Cooperative Engineering majors.
- Programs in Geology and Environmental Sciences cover all aspects of earth and planetary sciences as well as the interdisciplinary programs in environmental science and GIS.

Thrive in state-of-the-art Science Center

- Our new \$60 million Science Center features \$5 million in cutting-edge instruments and equipment. It boasts an innovative design that maximizes student learning, facilitates student-faculty collaboration, and creates spontaneous interactions across disciplines.
- Research labs and classrooms incorporate glass walls, natural light and open spaces, allowing visitors to easily observe students and faculty learning together.

Receive an exceptional value

- Fredonia alumni in graduate and medical schools consistently say they were better prepared than their peers at larger schools because of rigorous Fredonia courses, smaller class sizes, undergraduate research opportunities and genuine relationships with faculty mentors.
- Internships are conducted in hospital labs, physician offices, health departments, environmental agencies, and energy, biomedical and pharmaceutical companies, as well as hospitals, pharmacies, veterinary clinics and zoos.
- Health Professions Advising Program assists students pursuing careers in medicine, dentistry, optometry and veterinary medicine.
- Students perform field research in Lake Erie, its tributaries and Fredonia's 200-acre nature sanctuary.

- Numerous need- and merit-based scholarships and fellowships are available for academically talented students, including some of the biggest awards available on campus.

Exceptional faculty

- Faculty conduct research and are recognized consistently for their efforts on local, regional, national and international levels.
- Their interests range from studying the animal behavior of bats and praying mantises, among other species, quantifying the potential natural gas held with the Marcellus Shale region, and improving the water quality of the Great Lakes.



- One professor's research spurred a national law signed by President Obama. It bans the use of plastic microbeads in beauty and exfoliating products — because a Fredonian showed they contaminate water systems.

Alumni successes

- Many recent graduates are enrolled in medical, dental, veterinary and optometry schools.
- Alumni have gone on to become clinical scientists, high school teachers, biomedical research scientists, physicians, pharmacists, environmental scientists, venture capitalists, veterinarians, lab directors, lawyers and forensic scientists, among other professions.
- Fredonians are among the faculty at University of California at Berkeley, Penn State University, Indiana University of Pennsylvania, The Scripps Research Institute and other institutions.