CHEMISTRY: BIOCHEMISTRY - BS

As a chemistry major at St. Kate's, students will study chemistry in an environment that stresses close student-faculty interaction and individual support. A student's chemistry education will prepare her for a wide variety of careers in chemistry, including those in industry, health science and teaching. The major also serves as a stepping stone to other professions, including medicine, dentistry, chemical engineering, medicinal chemistry, pharmacology, patent law, and technical writing.

Students will have the opportunity to work collaboratively in the laboratory on open-ended projects utilizing St. Kate's modern facilities and more than a half-million dollars worth of instrumentation. Students collaborate with faculty on research projects in such areas as organic and inorganic synthesis, computer simulations and molecular modeling, nanoscience and nanotechnology, bioanalytical chemistry, structural biology, and X-ray crystallography of organometallic complexes. Financial support for undergraduate research, including student stipends, is available through the St. Catherine's 3M Collaborative Research Endowed Fund and the Summer Scholars Program as well as external grant support to faculty.

Student-faculty research projects allow students to develop peer relationships with faculty and to do science, not just talk about it. In recent years, students have partnered with faculty on a wide variety of projects in the areas of electronic properties of nanomaterials, synthesis of bioactive molecules for disease treatment, NMR determination of protein structure, and natural products chemistry. Students have presented the results of their research at local, regional, and national meetings of the American Chemical Society, the Biophysical Society, and the Material Research Society.

In addition, St. Kate's is a member of the Green Chemistry Commitment. As a member of this commitment all chemistry graduates have training in chemical toxicology and green chemistry theory, applications, and practices.

The department's weekly chemistry seminars will introduce students to outside speakers who share their work and expertise in the discipline. These seminars also provide perspectives on careers in chemistry and our speakers often look to St. Kate's students for internships and job opportunities. Many chemistry majors obtain internships or technical assistant positions in local companies such as 3M, Ecolab, H.B. Fuller, Medtronic, and General Mills.

Chemistry majors are eligible for a variety of departmental scholarships. Some examples are the Sr. Marie James Gibbons Scholarship for a promising first-year student interested in chemistry as a major and the Sr. Mary Thompson Scholarship for a chemistry major planning a career in science or medicine. Multiple Helen Steinfort Jordan Scholarships are available to support talented junior and senior chemistry majors who also demonstrate financial need.

Curriculum

Chemistry: Biochemistry

Code	Title	Credits
Required Major Courses		
CHEM 1110 & CHEM 1120	General Chemistry I with Lab and General Chemistry II with Lab	8
CHEM 2010 & CHEM 2020	Organic Chemistry I with Lab and Organic Chemistry II with Lab	8
CHEM 3000	Quantitative Analysis with Lab	4
CHEM 3310	Physical Chemistry I with Lab	4
CHEM 3320	Physical Chemistry II with Lab	4
or CHEM 4200	Advanced Analytical Chemistry with Lab	
or CHEM 4000W	Advanced Inorganic Chemistry with Lab	
CHEM 4400 & CHEM 4500W	Biochemistry with Lab and Advanced Biochemistry with Lab	8
CHEM 4851	Seminar (1 credit each; 4 semesters)	4
One upper-division biology course from:		4
BIOL 3210	Biology of Microorganisms with Lab	
BIOL 3224	Cell Biology with Lab	
BIOL 3260	Developmental Biology	
BIOL 3340	Reproductive Science and Medicine with Lab	
BIOL 4354	Molecular Biology with Lab	
BIOL 4400	Medical Mycology and Disease Ecology with Lab	
BIOL 4504	Advanced Contemporary Biology with Lab	
Total Credits		**44**

Students must complete four additional upper-division (3XXX or 4XXX level) credits determined by the student and her advisor.

Code	Title	Credits
Required Supporting Courses (minimum grade of C- required)		
BIOL 1710 & BIOL 1720	Foundations of Biology: Diversity and Evolution with Lab and Foundations of Biology: Cell and Molecular Biology with Lab	8
MATH 1130 & MATH 1140	Calculus I and Calculus II	8
Choose One From:		8
PHYS 1080 & PHYS 1090	Physics for the Health Sciences I with Lab and Physics for the Health Sciences II with Lab	
PHYS 1110 & PHYS 1120	Introductory Physics I with Lab and Introductory Physics II with Lab	
Total Credits		**24**

Chemistry: Biochemistry majors satisfy the Writing Requirement for Majors by completing CHEM 4500W Advanced Biochemistry with Lab. They complete the Liberal Arts and Sciences Core Writing Requirement with three additional writing-intensive courses (CORE 1000W The Reflective Woman, CORE 3990W Global Search for Justice, and any other writing-intensive course in another department).

Code	Title	Credits
Fall Term		
BIOL 1710	Foundations of Biology: Diversity and Evolution with Lab	4
CHEM 1110	General Chemistry I with Lab	4
MATH 1130	Calculus I	4
Spring Term		
BIOL 1720	Foundations of Biology: Cell and Molecular Biology with Lab	4

CHEM 1120	General Chemistry II with Lab	4
MATH 1140	Calculus II	4
Fall Term		
CHEM 2010	Organic Chemistry I with Lab	4
PHYS 1080	Physics for the Health Sciences I with Lab	4
Spring Term		
CHEM 2020	Organic Chemistry II with Lab	4
PHYS 1090	Physics for the Health Sciences II with Lab	4
Fall Term		
CHEM 3000	Quantitative Analysis with Lab	4
CHEM 4400	Biochemistry with Lab	4
CHEM 4851	Seminar	1
Spring Term		
CHEM 4500W	Advanced Biochemistry with Lab	4
CHEM 4851	Seminar	1
Fall Term		
CHEM 3310	Physical Chemistry I with Lab	4
CHEM 4851	Seminar	1
Select one from:		4
BIOL 3210	Biology of Microorganisms with Lab	
BIOL 3340	Reproductive Science and Medicine with Lab	
BIOL 3260	Developmental Biology	
BIOL 3224	Cell Biology with Lab	
BIOL 4220	Immunology with Lab	
BIOL 4354	Molecular Biology with Lab	
Spring Term		
CHEM 4200	Advanced Analytical Chemistry with Lab	4
or CHEM 3320	Physical Chemistry II with Lab	
or CHEM 4000W	Advanced Inorganic Chemistry with Lab	
CHEM 4851	Seminar	1
Total Credits		**68**