BIOLOGY - BS

St. Kate's biology major gives students an understanding of the major principles of biology in a manner that encourages the development of critical-thinking skills. Faculty members encourage students to take an active role in their own educational experiences and foster a cooperative - rather than competitive - learning environment in which women thrive. Students receive hands-on experience with advanced biological techniques and instrumentation.

The biology curriculum provides a solid foundation of first- and second-year courses followed by a variety of advanced courses in topics spanning the discipline. Students frequently use electronic databases to access the scientific literature and professional software programs to analyze data. Students often collaborate with faculty on research projects and access an on-site cadaver, tissue culture facilities, and modern biological instrumentation for laboratory and fieldwork.

A St. Kate's biology major prepares students for a wide range of careers in the biological sciences, including graduate research in ecology and environmental science, cellular and molecular biology, genetics, plant and animal physiology, behavior, public health, forensic science, and for professional programs in medicine, physician assistant, dentistry, veterinary medicine, physical therapy, optometry, pharmacy, and medical technology. St. Kate's biology graduates lead and influence as professionals in healthcare, teaching, non-profit organizations, industry, and government.

Students have many opportunities to explore career options, including internships related to their specific interests. Internships at off-campus sites expose students to the day-to-day activities of professionals ranging from physicians, field biologists, teachers, and basic researchers to industrial biotechnologists.

Students also can explore their creative, intellectual, and scientific potentials through research projects done in collaboration with faculty. This type of experience allows students to discover the dynamic nature of the scientific process, experience autonomy in their thinking while seeing how collaboration enhances scientific creativity and productivity, and learn the value of perseverance through the frustrations that often accompany conducting and trouble-shooting experiments. Together with faculty mentors, students pose original research questions and are involved in experimental design, data gathering, and interpretation of results. Students share their research results with the larger scientific community through conference presentations and publications. Participation in research activities as undergraduates helps some students decide if research is an appropriate career path and enhances their chances of being accepted into graduate programs. Students may receive stipends to support their research activities through the Summer Scholars Program, the Assistantship Mentoring Program, and Faculty/Student Collaborative 3M STEM Grants.

See also: Applied Science in Biology (https://catalog.stkate.edu/undergraduate/humanities-arts-sciences/biology/applied-science-biology-ba-bs/), Pre-Physical Therapy (https://catalog.stkate.edu/undergraduate/preprofessional-programs/prephysical-therapy/), Pre-Holistic Health Studies (https://catalog.stkate.edu/undergraduate/preprofessional-programs/pre-mahs/).

This major is offered in the College for Women only.

Curriculum

Code	Title	Credits
Required Courses in the Major		
BIOL 1710	Foundations of Biology: Diversity and Evolution with Lab	4
BIOL 1720	Foundations of Biology: Cell and Molecular Biology with Lab	4
BIOL 2710	Introduction to Ecology with Lab	4
BIOL 2720	Sophomore Seminar	2
BIOL 2810	Genetics with Lab	4
BIOL 4602	Internship	2
or BIOL 4912	Research	
BIOL 4860W	Senior Seminar	4
Biology Electives		
16 additional credits in Biology at the 3000/4000 level including:		16
At least four courses from the following list		
A minimum of one course in each of the three biology subdisciplines		
Cell and Molecular Biology		
BIOL 3210	Biology of Microorganisms with Lab	
BIOL 3224	Cell Biology with Lab	
BIOL 3260	Developmental Biology	
BIOL 4354	Molecular Biology with Lab	
Organismal Biology		
BIOL 3120	Human and Comparative Vertebrate Anatomy with Lab	
BIOL 3140	Human and Comparative Animal Physiology with Lab	
BIOL 3340	Reproductive Science and Medicine with Lab	
BIOL 3820	Biology of Longevity and Aging	
BIOL 3850	Biopsychology with Lab	
Ecology and Evolution		
BIOL 3050	Algal Ecology in a Modern World	
BIOL 3100	Plant Biology with Lab	
BIOL 3300	Evolutionary Biology with Lab	
BIOL 4400	Medical Mycology and Disease Ecology with Lab	
Additional Eligible Courses		
BIOL 3504	Contemporary Biology with Lab	
BIOL 4994	Topics [1]	
12 additional credits in any STEM discipline at the 2000/3000/4000 level excluding any 2XXX nonmajor Biology courses.		12
Total Credits		**52**

[1] The subject/subdiscipline of each topics course varies.

Code	Title	Credits
Required Supporting Courses (minimum grade of C- required)		
CHEM 1110	General Chemistry I with Lab	4
CHEM 1120	General Chemistry II with Lab	4
CHEM 2010	Organic Chemistry I with Lab	4

Select one of the following:		4
Statistics:		
ECON 1090	Statistical Analysis for Decision Making	
PSYC 1090	Statistical Methods in Psychology	
STAT 1090	Statistical Analysis	
MATH 1090	Precalculus	
Total Credits		**16**

Code	Title	Credits
Recommended Courses		
CHEM 2020	Organic Chemistry II with Lab	4
CHEM 4400	Biochemistry with Lab	4
MATH 1130	Calculus I	4
MATH 1140	Calculus II	4
Select one of the following (two semesters of physics)		8
PHYS 1110 & PHYS 1120	Introductory Physics I with Lab and Introductory Physics II with Lab	
PHYS 1080 & PHYS 1090	Physics for the Health Sciences I with Lab and Physics for the Health Sciences II with Lab	
Total Credits		**24**

Biology majors satisfy the Writing Requirement for Majors by completing BIOL 4860W Senior Seminar. They complete the Liberal Arts and Sciences Core Writing Requirement with three other writing-intensive courses (CORE 1000W The Reflective Woman, CORE 3990W Global Search for Justice, and any other writing-intensive course in any 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
Select one of the following:		4
ECON 1090	Statistical Analysis for Decision Making	
PSYC 1090	Statistical Methods in Psychology	
STAT 1090	Statistical Analysis	
MATH 1090	Precalculus	
Spring Term		
BIOL 1720	Foundations of Biology: Cell and Molecular Biology with Lab	4
CHEM 1120	General Chemistry II with Lab	4
Fall Term		
CHEM 2010	Organic Chemistry I with Lab	4
BIOL 2710	Introduction to Ecology with Lab	4
Spring Term		
BIOL 2810	Genetics with Lab	4
BIOL 2720	Sophomore Seminar	2
Years three and four are developed in consultation with your advisor		