

BIOLOGY MAJOR

Major Change

The Biology Major changed in Fall 2016. For previous versions of this major, visit the Archives (<https://hccatalog.holycross.edu/archives/>).

Department Advanced Placement Policy

Students with AP credit in Biology do not receive credit toward the minimum number of course required by the major or advanced standing in the Biology curriculum.

Requirements

Code	Title
BIOL 161	Introduction to Cell & Molecular Biology
BIOL 162	Introduction to Mechanisms of Multicellular Life
BIOL 163	Introduction to Biol Diversity and Ecology
Select five of the following, with at least one course from three of the four Course Distribution Areas: ¹	
Cellular and Molecular Biology:	
BIOL 223	Microbiology
BIOL 241	Virology
BIOL 266	Cell Biology
BIOL 267	Neurobiology
BIOL 301	Biochemistry 1
BIOL 302	Biochemistry 2
BIOL 392	Molecular Immunology
Mechanistic Organismal Biology:	
BIOL 213	Comparative Vertebrate Morphology
BIOL 230	Developmental Biology
BIOL 361	Toxicology
BIOL 390	Physiology
Organismal Diversity:	
BIOL 220	Entomology
BIOL 250	Field Botany
BIOL 255	Vertebrate History
Ecology and Evolution:	
BIOL 233	Freshwater Ecology
BIOL 235	Marine Biology
BIOL 280	Ecology
BIOL 281	Conservation Biology
BIOL 283	Evolution
BIOL 287	Ethology & Behavioral Ecology
BIOL 331	Ecosystem Ecology
CHEM 181	Atoms & Molecules (with lab)
CHEM 221	Organic Chemistry 1 (with labs)
or CHEM 231	Equilibrium & Reactivity
MATH 135	Calculus 1 (or equivalent)
BIOL 275	Biological Statistics
or STAT 220	Statistics
Select two cognate courses chosen from the approved list maintained by the department: ²	
CHEM 221	Organic Chemistry 1

CHEM 222	Organic Chemistry 2
CHEM 231	Equilibrium & Reactivity
CSCI 131	Techniques of Programming
CSCI 132	Data Structures
CSCI 135	Discrete Structures
GEOS 150	Introduction to Geology
GEOS 210	Geomorphology
GEOS 270	Watershed Hydrology
GEOS 310	Paleoclimatology
MATH 136	Calculus 2
MATH 241	Multivariable Calculus
PHYS 115	Introductory Physics 1: Mechanics, Fluids and Waves
PHYS 116	Introductory Physics 2: Electromagnetism, Optics and Modern Physics
PSYC 221	Physiology and Behavior

- ¹ Of the five upper division biology courses, at least three must have accompanying labs.
- ² AP or IB may not be used to fulfill this requirement. Students may elect to substitute an upper division biology course (beyond the required five) for one of these cognates.

To be admitted to the biology major, students must have completed at least one introductory biology course and a lab course in chemistry, geology or physics, all at Holy Cross. The applicant must have earned at least a C average in biology and also in the other science courses (both averages are considered separately). Admission is competitive; it depends on classroom performance, an essay submitted with the admission process and on available space. Because the biology major, like all science majors, is structured, it is important that prospective majors begin their science courses as early as possible and certainly no later than their third semester.

All biology majors must earn an average grade of C or better in introductory biology courses to continue in the major. Additional courses, up to a maximum of 14, may be taken at Holy Cross or, with the chair's permission, in other programs, such as Study Abroad, Study Away, the Higher Education Consortium of Central Massachusetts or summer school.

In addition to formal courses, the Department offers qualified students an opportunity to conduct research (BIOL 401 Undergraduate Research) in association with faculty members in their research laboratories. Opportunities also exist for students to pursue individual interests in faculty-directed readings courses based on biological literature (BIOL 405 Directed Readings). Students conducting research for a thesis in the College Honors Program must elect BIOL 407 Honors Research, BIOL 408 Honors Research. Students may receive up to one semester of lab credit towards the major by taking either BIOL 401 Undergraduate Research or BIOL 407 Honors Research. Additional semesters of research count for credit towards graduation from the College but do not count as biology credits. Research credits are subject to the rule of no more than 14 courses in any department.