

Biology

www.goshen.edu/bio

Why study biology at Goshen College?

Goshen College can give you the academic foundation to enter biology-related careers, or to further your education in post-graduate studies. Goshen College students find many opportunities for academic studies and research; biology majors interested in a health occupation can also gain experience in programs linking GC with local health-care providers.

Academic excellence

Goshen College has an excellent record in preparing students to succeed in the sciences.

- In the past 10 years, 82 percent of GC students who have applied to medical school have been accepted.
- In a recent study by Franklin and Marshall College of over 500 undergraduate institutions, Goshen College ranked in the top 5 percent for its percentage of graduates who earned Ph.D.s in life sciences.
- In a comparison to 70 undergraduate institutions in the Council for Christian Colleges and Universities, Goshen was number one in the percentage of graduates who received Ph.D.s in the life sciences.

Excellent facilities

Goshen College's on and off campus facilities provide excellent resources for biology students.

- ***Science Building and Schrock Annex:*** Renovated in 1992, this facility provides modern laboratory and research facilities. Its comfortable and safe research labs are well-ventilated and well-equipped for basic research in the genetic, cellular, molecular, vertebrate, aquatic and marine areas.
- ***Merry Lea Environmental Learning Center:*** This 1,150-acre natural area of lakes, wetlands, forests, meadows and prairies is located 30 miles south of the campus. Facilities include overnight accommodations and an environmental-education building that houses a classroom, offices and library. Opportunities are available for environmental field research through the undergraduate Maple Scholars program, as well as short-term teaching internships in environmental education.
- ***Marine Biology Laboratory at Layton, Fla.:*** A housing and laboratory structure provides a permanent home for GC's marine biology program. The facility houses 18 students during an intensive experience in marine biology in the Florida Keys each May term.

- ***Witmer Woods:*** An 18-acre arboretum of native shrubs and trees within walking distance of campus.
- ***Au Sable Institute of Environmental Studies:*** Goshen College is part of a network of Christian colleges that send students to the Au Sable Institute. Students can take classes in environmental studies and gain field experience that will transfer as credits to GC.

Opportunities to work closely with faculty

Students can interact personally with the science faculty in classes, labs and research activities.

- The student-faculty ratio is 12:1, giving students the opportunity to work one-on-one with their professors.
- Students have the opportunity to participate in various undergraduate research projects directed by faculty members.
- Many students work with professors as lab assistants.

Opportunities to gain experience

Students will find many opportunities to gain valuable experience (paid or volunteer) in and around GC.

- ***International experience:*** Most Goshen College students spend a semester abroad in GC's unique Study-Service Term (SST). Biology majors who are interested in a health-related career are encouraged to spend their six-week period of service working in a health-related assignment, such as a hospital or clinic. Students interested in environmental studies may be able to spend their service working on a farm or another location where they may experience the use of the environment in another culture.
- ***Health-related experience:*** Students are encouraged to shadow a physician or volunteer in the emergency room at Goshen General Hospital (across the street from GC). Students may also seek employment at Greencroft, a large nursing home/assisted living center (within walking distance of GC) or Oaklawn, a psychiatric hospital (a 10-minute drive from GC).
- ***Experience in environmental studies:*** Students interested in environmental biology and environmental education can gain field experience at Merry Lea Environmental Learning Center (part of GC) or through the Au Sable Institute of Environmental Studies.

Suggested plan of study

Biology majors have numerous options for study. Students may choose to focus on an area of interest, such as:

agriculture	human biology
biology education	marine biology
biotechnology	microbiology
botany	molecular biology
cellular biology	research
ecology	systematics
environmental biology	tropical agriculture
field biology	wildlife biology
genetics	zoology
allied health (physical therapy, occupational therapy, medical technology, pharmacy)	
preprofessional (medicine, veterinary medicine, dentistry, physician assistant)	

Goshen College offers majors in general biology, molecular biology and environmental studies, as well as secondary education certification for biology majors.

Biology majors must complete a minimum of 24 hours in biology (plus Biol 409 and 410), of which 12 hours must be upper level, plus courses in related sciences for a total of 40 hours. Students who decide to specialize in a certain area or wish to prepare for post-graduate programs may have to add additional courses.

Core courses:

Biol 100-101, Biological Principles	8
Biol 300, Microbial Biology	4
Biol 301, Genetics	4
Biology electives (four upper level)	8
Biol 410, Biology Senior Seminar	3
Biology field experience:	0-3
Biol 209, Field Experience	
Biol 400 Biology Research	
Biol 409, Internship	
or other equivalent experience entailing at least 120 of practical experience in biology	

Related courses:

Chem 111-112, General Chemistry	8
Chem 303, Organic Chemistry	4
Additional science electives	1 or more

An example of a biology major's beginning plan of study follows:

	<i>Fall</i>	<i>Spring</i>	<i>May Term</i>
First year	General Chemistry I Biological Principles I or Precalculus I (if needed) General education/elective	Biological Principles II General Chemistry II General education/electives (or Calculus I if needed)	General education/elective
Second year	Microbial Biology or Biological Principles I Organic Chemistry I General Education/electives	Genetics Biology electives or general education/electives	SST

Biology electives

Biology of the Sea
Botany of Seed Plants
Developmental Vertebrate Biology
Forest Resources
General Ecology
General Entomology
Human Anatomy & Physiology
Human Pathophysiology
Land Management
Limnology
Marine Biology
Microbiology
Molecular Cell Biology
Ornithology
Plant Kingdom
Vertebrate Physiology

Faculty advisers

Stanley N. Grove, Ph.D.; Professor of Biology; B.A., Goshen College, 1965; Ph.D., Purdue University, 1971.
(574) 535-7320, stanng@goshen.edu

James S. Miller, Ph.D.; Professor of Biology; B.S., Bluffton College, 1975; Ph.D., Ohio State University, 1980.
(574) 535-7308, jamessm@goshen.edu