

# Biology

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The Biology Department is one of Bridgewater's largest, with six full-time faculty and approximately 200 majors. The department, which occupies all of the first floor of the McKinney Center for Science and Mathematics, contains six major teaching laboratories, six mini-labs for faculty and student research, along with offices and classrooms. The Biology Department offers introductory and advanced courses that prepare majors either for immediate employment or post-baccalaureate studies at graduate or professional schools. The department also provides a service function in that all Bridgewater students must take at least one biology course; many take two or three.

The Biology Department offers **pre-professional** programs in the areas of **medicine, dentistry, physical therapy, and veterinary science**. These programs prepare interested students for graduate and professional work in selected areas.

For more information on pre-professional programs visit [www.bridgewater.edu](http://www.bridgewater.edu)

Rapidly expanding knowledge in cell biology, molecular genetics, and ecology assures bright futures for well-prepared biologists. With a baccalaureate degree, recent graduates have gained employment as life science teachers, laboratory technicians in industry, allied health, and government, environmental and conservation professionals, health officers, caseworkers, naturalists, and pharmaceutical salespersons. With graduate or professional degrees, Bridgewater alumni have become successful physicians, research scientists, veterinarians, medical technologists, environmental lawyers, dentists, physical therapists, genetic counselors, and forestry and wildlife specialists.



► FOR INFORMATION ON CAREERS  
IN BIOLOGY, VISIT THE OFFICE OF  
CAREER SERVICES OR GO TO: [WWW.  
BRIDGEWATER.EDU](http://WWW.BRIDGEWATER.EDU)

## **BIOLOGY MAJOR REQUIREMENTS**

A major in Biology consists of a minimum of 32 credit hours of course work within the department. The following courses are required:

BIOL 207	Organisms I
BIOL 208	Organisms II
BIOL 309	Genetics
BIOL 311	General Physiology
	OR
BIOL 314	Human Physiology
BIOL 325	Molecular Biology of the Cell
BIOL 350	Ecology
BIOL 430	Evolution

*Supporting courses for the major are:*

CHEM 161	General Chemistry
CHEM 162	General Chemistry
MATH 120	Precalculus Mathematics
MATH 130	Survey of Calculus

Majors preparing for graduate study, professional programs, or teaching will require additional coursework in organic chemistry, biochemistry, and/or physics in order to qualify for entry.

## **BIOLOGY MINOR REQUIREMENTS**

The following courses are required for a minor in Biology:

BIOL 207	Organisms I
BIOL 208	Organisms II
BIOL 309	Genetics
BIOL 325	Molecular Biology of the Cell
BIOL 350	Ecology

### **SUPPORTING COURSES FOR THE MINOR ARE:**

CHEM 161	General Chemistry
CHEM 162	General Chemistry
MATH 120	Precalculus Mathematics
MATH 130	Survey of Calculus

## **MEDICAL TECHNOLOGY MAJOR REQUIREMENTS**

A major in Medical Technology requires a student to complete three years of study at Bridgewater College followed by a 12-month program at a school or department of medical technology that has signed an articulation agreement with Bridgewater College. In the three-year curriculum at Bridgewater College, the student must earn a minimum of 91 credits with a minimum cumulative grade point average of 2.0.

The following courses are required in the three-year curriculum at Bridgewater College:

BIOL 207	Organisms I
BIOL 208	Organisms II
BIOL 314	Human Physiology
BIOL 325	Molecular Biology of the Cell
BIOL 400	Microbiology
BIOL 410	Immunology
CHEM 161	General Chemistry
CHEM 162	General Chemistry
CHEM 305	Organic Chemistry I
CHEM 306	Organic Chemistry II
MATH 120	Precalculus Mathematics
MATH 130	Survey of Calculus

In the fourth year of the program, the student must complete the equivalent of 32 credit hours with a 2.00 grade point average. Currently Bridgewater College has articulation agreements with three schools, each accredited with the National Accrediting Agency for Clinical Sciences. The programs and program coordinators are:

### **Rockingham Memorial Hospital**

Warren Bannister, M.D., medical director  
Sue W. Lawton, MT (ASCP), M.A, M. S.,  
program director

### **Augusta Medical Center**

Wayne P. Jessee, M.D., medical director  
Bernadette Bekken, CLS (NCA), MT (ASCP),  
program director

### **George Washington University**

Donald Karcher, M.D., medical director  
Sylvia Silver, Ph. D., program director

## Teacher Certification

Teacher certification for Biology consists of completing the major requirements for Biology and at least one semester of organic chemistry, chosen from the following:

CHEM 250 Fundamental Organic Chemistry  
OR

CHEM 305 Organic Chemistry I

Refer to the Education Department listings for additional certification requirements.

## Articulation Programs

The department has pursued articulation programs with other institutions in other fields as well. These include **Veterinary Medicine** with Virginia Tech, **Physical Therapy** with Shenandoah University, and **Forestry** with Duke University. The department also articulates mentored internships with numerous local and regional governmental agencies, clinics, industries, and research labs. Recently, biology majors have interned with the Virginia Commission of Game and Inland Fisheries, the Wildlife Center of Virginia, the Virginia Department of Environmental Quality, West Virginia State University research labs, local hospitals, industries, and veterinary clinics.

## COURSES

### BIOL 100 The Nature of the Biological World 4 Credits F, S

A survey of the discipline of biology designed for the non-major. Content varies with the expertise of the instructor, but all sections focus on the relevance/importance of biology in everyday life. Laboratory focuses on understanding science as a process and includes an independent research project with oral presentation. Three lectures and one lab per week.

*General Education: Natural Science*

### BIOL 205 The Biology of Horses 3 Credits I

An introduction to morphology, physiology, genetics, and reproductive biology, using the horse as the object of study. Elements of applied animal behavior, breed variations, nutrition, disease pathology, and livestock management will be illustrated during the field trips, which will include visits to the Maryland-Virginia Regional College of Veterinary Medicine, the Virginia Equine Research Center, the Eastern Regional Veterinary Pathology Laboratory, and selected horse breeding farms in central and western Virginia.

### BIOL 207 Organisms I 4 Credits F, S

A survey of the biodiversity of the Monera, Fungi and Plant Kingdoms, as well as an introduction to cellular biology: structure, function, chemistry, DNA, genetics and metabolism. Three lectures and one laboratory per week.

*General Education: Natural Science*

### BIOL 208 Organisms II 4 Credits F, S

A survey of the biodiversity of the Protist and Animal Kingdoms, as well as an introduction to ecology and evolution. Three lectures and one laboratory per week.

*General Education: Natural Science*

*Note: Either BIOL 207 or 208 may be taken first in the sequence*

### BIOL 210 Hijacking Genes 3 Credits I

An exploration of promises, applications, and expectations of modern molecular biology, including movement of genes among species, DNA in criminology, and advances that might make us free of disease and hunger.

*Prerequisites: BIOL 100, 207 or 208, or permission of instructor*