



## Biology | Major

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### PROGRAM HIGHLIGHTS IN BRIEF

Alvernia is a Franciscan university dedicated to academic achievement, community service and the professional and personal fulfillment of our students. Biology classes are taught by dedicated faculty, committed to the ideal that scientific study is a human endeavor that actively works to improve our lives and to advance the world for a better and more sustainable future.

Biology courses are taught in the O’Pake Science Center, a \$9.3 million state-of-the-art teaching and research facility that opened in 2006. The O’Pake Science Center added 31,582 square feet of classroom, laboratory, and faculty office space to Alvernia’s campus. Two floors of laboratory and classrooms space, all of which have the latest in educational technology, allow students to employ a variety of laboratory equipment for use in examining cells and tissues, exploring human physiology, isolating and manipulating DNA, growing and analyzing microbes like bacteria, as well as the study and propagation of plants. Studies involving biomedical and environmental analysis are facilitated by instrumentation including UV/Vis, infrared and fluorescence spectrophotometers, HPLC, GC, GC-Mass Spec. and Raman spectrometry, Flame/Graphite-Furnace Atomic Analyzer, as well as a high energy LASER-coupled spectrometer.

### ACADEMIC QUALITY

The Biology program provides students with a solid base of knowledge of fundamental biological concepts and principles, as well as the skills to put that knowledge to use in a variety of academic or professional pursuits.

Biology students have the opportunity to develop scientific skills and techniques within a challenging academic program that prepares them for opportunities in environmental science, biomedical research, biotechnology industry, as well as graduate study in biology or a variety of health-related professions.

The Biology program also offers coursework that can give qualifying students an opportunity to enter either Temple University Kornberg School of Dentistry or the Reading Hospital Clinical Medical Technology program after completion of their third year at Alvernia. Students accepted into either of these programs acquire their BS in Biology from Alvernia after successful completion of their first year of professional study.

### INTERNSHIP OPPORTUNITIES

Alliance for a Clean Environment	Institute of Paper Science & Technology
American Assoc. for the Advancement of Science	Lehigh Valley Hospital
Atlanta Semester	National Science Foundation
Berks County Conservancy	Newfound Harbor Marine Institute
Bristol-Myers Squibb	PA Dept. of Conservation and Natural Resources
Capital Semester Internship Program	Philadelphia Zoo
Chicago Botanic Garden	Rainforest Action Network
Conservancy of Southwest Florida	Reading Public Museum
Echo Hill Outdoor School	Rodale Press
Environmental Protection Agency	Roving Nature Center, Inc.
Hawk Mountain Sanctuary	Schuylkill Riverkeepers
Institute for Experiential Learning	Virginia Marine Science Museum

### CAREER SUCCESS

Biology graduates from Alvernia have pursued further study in podiatry, immunology, dentistry, optometry, medicine and education. They are employed by such reputable companies and research facilities as Wyeth-Ayerst Laboratories, GlaxoSmithKline, Carpenter Technology Corporation, Harvard University, Thomas Jefferson University and The Graduate Hospital of Philadelphia; as well as by virtually every hospital in Berks County and many in Lebanon, Lancaster, York, Pottsville and Philadelphia. They serve society as physicians, dentists, teachers, pharmacists, research associates and technologists.

## CURRICULUM OVERVIEW

### Biology Major

#### Biology Core Requirements (22 credits)

BIO 103	Principles of Biology w/Lab
BIO 104	Zoology w/Lab
BIO 221	General Microbiology w/Lab
BIO 303	Genetics
BIO 304	Cell Biology
BIO 309	Molecular Genetics Lab
BIO 311	Cellular Physiology Lab
BIO 402	Senior Seminar

#### Math/Science Requirements (26 credits)

CHE 104/110	General Chemistry I w/Lab
CHE 105/111	General Chemistry II w/Lab
CHE 107	Laboratory Safety
CHE 201/210	Organic Chemistry I w/Lab
CHE 202/211	Organic Chemistry II w/Lab
MAT 209	Probability & Statistics
MAT 220	Math/Stats Computer Lab
MAT 230	Calculus I
PHY 110	General Physics I w/Lab
PHY 111	General Physics II w/Lab

#### Biology Research/Internship (6 credits)

BIO 480	Biology Internship -OR-
BIO 316	Intro to Biology Research
BIO 317	Experimentation in Biology
BIO 407	Data Analysis in Biology Research

#### Biology Electives (18-24 credits)

BIO 107/117	Anatomy & Physiology I w/lab
BIO 108/118	Anatomy & Physiology II w/lab
BIO 205	Botany w/Lab
BIO 208	Neuroscience for Rehab
BIO 211	Kinesiology w/Lab
BIO 216	Nutrition
BIO 320	Ecology w/Lab
BIO 405	Pharmacology
BIO 409	Immunology
BIO 410	Pathophysiology

#### Alternate Special Topics

BIO 290	Environmental Earth Science
BIO 290	Vertebrate Physiology
BIO 290	Histology
BIO 390	Ornithology
BIO 390	Biodiversity
BIO 390	Endocrinology
BIO 390	Human Development
BIO 490	Aquatic Biology
BIO 490	Environmental Law & Policy
CHE 390	Environmental Chemistry

### Biology-Secondary Education Major

#### Biology Requirements (28 credits)

BIO 103	Principles of Biology w/Lab
BIO 104	Zoology w/Lab
BIO 115	Human Form and Function
BIO 205	Botany w/Lab
BIO 221	General Microbiology w/lab
BIO 303	Genetics
BIO 320	Ecology w/Lab
BIO 330	Biotechnology
COM 270	ESL Teachers

#### Required Liberal Arts Core

43 credits to include:

MAT 209	Probability and Statistics
PSY 101	Introductory Psychology

#### Related Requirements (29 credits)

CHE 104/110	General Chemistry I w/Lab
CHE 105/111	General Chemistry II w/Lab
CHE 107	Laboratory Safety
CHE 201/210	Organic Chemistry I w/Lab
MAT 230	Calculus I
PHY 103	Earth Science
PHY 110	General Physics I w/Lab
PSY 210	Educational Psychology

#### Secondary Education Major:

ED 200	Foundations of Education
ED 206	Field Experience I
ED 306	Field Experience II
ED 313	Classroom Management
ED 330	Curriculum Design and Assessment
ED 333	Literacy Methods for Secondary Inclusive Classroom
ED 416	Field Experience III
ED 434	Methods of Teaching Secondary Science
ED 470	Student Teaching
ED 472	Student Teaching Seminar
SPE 100	Introduction to Exceptionalities in Children and Youth

#### CONTACT INFORMATION

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