Biochemistry | Major

“In chemistry, it’s all about your lab technique. At Alvernia I learned how to do chemistry correctly and efficiently. I learned to work at a quick pace and think ahead.”—Jason Betz ’08, Adpen Laboratories, Jacksonville, FL

PROGRAM HIGHLIGHTS IN BRIEF

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

Science 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/classrooms space, all of which have the latest in educational technology, allow students to employ a variety of laboratory equipment for use in cell fractionation, protein purification, isolation and manipulation of DNA, enzyme characterization, as well as the study and propagation of bacteria and mammalian cells. Biochemical studies 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

Biochemistry is specially designed as an interdisciplinary program for students with a strong interest in both biology and chemistry. Combined with hands-on experience, the program will prepare Biochemistry majors to pursue opportunities for graduate study in biochemistry, pharmacology and physiology; or for employment in biomedical research or the biotechnology industry. The biochemistry major provides courses that best prepare students for professional schools of medicine, dentistry, pharmacy or optometry.

Biochemistry students can explore careers through internships or develop practical experience through individual research projects that focus on a selected problem, which follows a preliminary investigation under the direction of a faculty member.

INTERNSHIP OPPORTUNITIES

Reading Hospital –Internal Medicine  Puritan Products, Inc.
Berks County Coroner’s Office  Queen Anne’s County Office of the Sheriff
Clinical Laboratories, Inc.  Schuylkill County Coroner’s Office
Georgia Bureau of Investigation  United States Medical Research Institute of Chemical Defense
Lower Allen Township Police Department  Western Correctional Institution
Maternal Fetal Medicine

CAREER SUCCESS

Biochemistry graduates from Alvernia University have pursued further study in dentistry, optometry, microbiology, medical technology, forensic pathology and education. They are employed by such reputable companies and research facilities as the Walter Reed Army Institute of Research, the Wistar Institute, Ortho Pharmaceutical Co., Crompton & Knowles, Spotts, Stevens & McCoy, Pfizer Inc. and National Medical Service. They serve society as optometrists, pharmacists, teachers, research technicians, scientific editors, microbiologists and medical technologists. Alvernia’s Career Development staff provides assistance with resume preparation, interview skills and job and graduate school searches.
CURRICULUM OVERVIEW

Biochemistry Major (76-80 Credits)

CHE 104  General Chemistry I
CHE 105  General Chemistry II
CHE 107  Laboratory Safety
CHE 110  General Chemistry I Lab
CHE 111  General Chemistry II Lab
CHE 201  Organic Chemistry I
CHE 202  Organic Chemistry II
CHE 210  Organic Chemistry I Lab
CHE 211  Organic Chemistry II Lab
CHE 301  Physical Chemistry I
CHE 302  Physical Chemistry II
CHE 303  Physical Chemistry II Lab
CHE 401  Biochemistry
CHE 402  Seminar
CHE 410  Biochemistry Laboratory

Related Requirements (38-42 credits)

BIO 103  Principles of Biology
BIO 115  Human Form & Function
BIO 116  Human Form & Function Lab
BIO 221  General Microbiology w/Lab
BIO 303  Genetics
BIO 304  Cell Biology and
BIO 311  Cell Physiology Lab -OR-
BIO 409  Immunology
BIO 309  Molecular Genetics Lab
PHY 110  General Physics I w/Lab
PHY 111  General Physics II w/Lab
MAT 209  Probability and Statistics
MAT 131  Precalculus (recommended)
MAT 220  Math/Statistics Computer Lab
MAT 230  Calculus I

plus 1 elective course in BIO, CHE, or MAT

Biochemistry Electives (3-4 credits)

BIO 205  Botany w/Lab
BIO 315  Forensic Medicine
BIO 405  Pharmacology
BIO 409  Immunology
CHE 212  Analytical Chemistry w/Lab
CHE 221  Instrumental Analysis
CHE 315  Forensic Toxicology
MAT 231  Calculus II

BIO/CHE Research/Internship (6 credits)

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

CONTACT INFORMATION

Elizabeth Gardner, Ph.D.
Chair of Mathematics and Sciences
1-610-796-8247
elizabeth.gardner@alvernia.edu

Office of Admissions
1-610-796-8269
admissions@alvernia.edu