



Albright
COLLEGE

**CHEMISTRY
AND
BIOCHEMISTRY**

CHEMISTRY AND BIOCHEMISTRY AT ALBRIGHT COLLEGE

Why Should I Study Chemistry or Biochemistry at Albright?

At Albright, students in chemistry and biochemistry receive the education and experience needed to prepare them for graduate or professional study in a wide variety of fields, or to begin working right after graduation in industry, research, education and business.

Class sizes are small, making the learning experience more meaningful and rich. In all of our classes, students find that one-on-one interaction between professor and student is the distinguishing feature.

Albright's Chemistry & Biochemistry Department is approved by the Committee on Professional Training of the American Chemical Society (ACS). Graduates with a bachelor of science degree in chemistry receive ACS certification, while graduates with a bachelor of science degree in biochemistry may also receive certification by taking two optional courses. Albright, in fact, was one of the first schools in the country to offer an undergraduate degree in biochemistry.

Academic Programs

Albright offers a modern chemistry program fully accredited by the Committee on Professional Training of the American Chemical Society. The department offers majors in chemistry, environmental chemistry, and biochemistry, plus a chemistry secondary education program that leads to certification to teach high school chemistry in Pennsylvania.

The chemistry program provides sound fundamental training for those who plan to pursue graduate studies, work in chemical or chemical-related industry or enter medical, dental or other health-science professional schools.

The environmental chemistry program gives a strong background in chemistry with specific emphasis on the chemistry of the environment. It prepares students for graduate programs in chemistry, environmental chemistry and environmental science; for immediate employment in solving environmental problems; or for further study in a variety of other professional programs. The program emphasizes practical experience in solving environmental problems.

The interdisciplinary biochemistry program is designed for students who plan careers in pharmacology, cellular biology, molecular biology, microbiology, toxicology, forensic science, the pharmaceutical and biotechnology industries, and medicine, dentistry, veterinary medicine and pharmacy.

Many Albright students pursue dual majors, combining chemistry or biochemistry with another discipline. Recently, students have graduated with majors in chemistry & computer science, chemistry & criminology, biochemistry & music, biochemistry & Spanish, and environmental chemistry & business.

Honors Program

Students who meet the academic qualifications may also participate in the Honors Program in chemistry and biochemistry. The program includes freshman honors courses, honors modules for sophomore and junior students, and independent research leading to Departmental Distinction and College Honors for seniors.

Internships

Students have many opportunities for hands-on learning through internships with companies and organizations such as:

- ATOFINA Chemicals
- Bayer Corporation
- Cabot Performance Metals
- Delaware County Medical Examiner's Office
- Dietrich Milk Products
- Johnson & Johnson
- Kiwi Brands
- Lancaster Laboratories
- National Institutes of Health
- Merck & Company
- Prizer Painter Corporation
- Reading Alloys
- Reading Fire Department
- Reading Police Department
- Reading Hospital & Medical Center
- Sealed Air Corporation
- Wyeth
- York Hospital

"I chose Albright for the personal interactions with professors and the hands-on scientific approach. Having experience at the bench is a must in the chemistry and biochemistry job market, so it was great to be able to cite specific experience during job interviews. The skills I learned at Albright made the transition from college to career smooth, and gave me the opportunity to work in the field that I've always aspired to!"

Mindy (Lancaster) Trzcinski '02
Biologist - FBI, Laboratory Division

“The program was designed in a way that allowed me to take control of my education. Most of my classes, even in the first year, were small enough to give me ample opportunity to interact with the faculty, while labs were designed to encourage active participation, problem solving and use of advanced instrumentation from the start.”

Keith Swetz '99, medical resident
Penn State University College of Medicine

Student Research

The Albright faculty is involved in a variety of research endeavors, and many students have conducted independent research in collaboration with faculty members. This work often leads to articles in professional journals and presentations at regional and national meetings.

In the summer prior to publication of this brochure, the following students did research through the College's Albright Creative & Research Experience (ACRE) Program:

■ Improved Ion Exchange Mechanism for Removing Perchlorate from Contaminated Water

Charles Frankhouser worked with Dr. Christian Hamann, chemistry professor, on this project. Perchlorate is an ingredient used in rocket fuel, and it is hoped that a new technology could assist in environmental remediation.

■ Studies of Unfolding of Arylamine N-Acetyltransferase (NAT) Induced by Urea and Guanidine Hydrochloride Followed by CD Spectroscopy

Quintina Herrera worked with Dr. Frieda Texter, chemistry professor. In essence, Quintina's project is chemical origami in reverse. Her work will ultimately produce useful information about the action of this enzyme in detoxifying organic pollutants in humans and other mammals.

■ Thermal Denaturation of Recombinant N-Acetyltransferase 2 by CD Spectroscopy

John Touhill worked with Dr. Frieda Texter from the chemistry department. John's research is applicable to the medical field, and contributes to the understanding of antibiotic resistance and the underlying causes of certain cancers.

■ Creating Ambrox from Pine Trees

Gary Willman worked with Dr. Chris Hamann on a chemistry project involving the synthesis of Ambrox, a perfume fixative historically made from the sperm whale. Gary explored techniques to create Ambrox from an easy-to-obtain natural compound in pine trees.

Outcomes

Graduate and Professional School

Albright students are regularly placed in respected law, medical, dental, pharmacy, optometry and veterinary schools, as well as graduate programs in specialized areas of biochemistry, chemistry or biology. Recent Albright graduates have gone on to study at institutions such as:

- Cornell University
- Johns Hopkins University
- Lehigh University
- Northwestern University
- Pennsylvania State University
- Princeton University
- Temple University
- Thomas Jefferson University
- Tufts University
- University of California Los Angeles
- University of Maryland
- University of Massachusetts
- University of Pennsylvania
- University of Virginia
- University of Wisconsin
- Yale University

Career Opportunities

Recent Albright graduates in chemistry and biochemistry have found job opportunities with organizations and companies that include:

- Air Products
- Bayer Corporation
- Carpenter Technology
- Centocor
- Elf Atochem
- Fastenal Company
- Federal Bureau of Investigation Laboratory
- Fox Chase Cancer Center
- Glaxo SmithKline
- Gilford Pharmaceuticals Company
- Johns Hopkins University
- Kimberly Clark
- Lancaster Laboratories
- Merck and Company
- Mutual Pharmaceuticals

- National Institutes of Health
- Neogenesis
- Pharmacopeia
- Reading Alloys
- Reading Tube
- Rohto-Mentholatum Research Laboratories
- Specialty Gases
- TEVA Pharmaceuticals
- TEK Products
- University of Pennsylvania
- Wyeth

Extracurricular Activities and Honor Societies

A student affiliate chapter of the American Chemical Society is active on campus. Albright students are eligible for at-large membership in Phi Lambda Upsilon, an honorary chemical society.

Biochemistry majors are eligible for membership in the American Society for Biochemistry and Molecular Biology Undergraduate Affiliate Network; Beta Beta Beta, an honorary biological society; and Alpha Epsilon Delta, an honorary pre-medical society. Also, many department majors are active in the Albright Environmental Association.

For more information about the chemistry or biochemistry programs, contact the chair of the chemistry department, Dr. Frieda Texter, at (610) 921-7747 or at ftexter@alb.edu.



Departmental Awards

Outstanding senior chemistry and biochemistry majors are recognized with the American Chemical Society Prize, the American Institute of Chemists Award, the Benjamin H. Handorf Chemistry Award, the Morgan S. Heller Memorial Chemistry Award, the Paul M. Leininger Chemistry Award and the Chemistry Faculty Award.

The Award in Analytical Chemistry is given to outstanding junior students in this discipline. The Undergraduate Award for Achievement in Organic Chemistry recognizes outstanding achievement by a biochemistry or chemistry major in introductory organic chemistry. The CRC Freshman Chemistry Achievement Award honors outstanding performance in general analytical chemistry.

Facilities

Albright's Merner-Pfeiffer Hall of Science holds an impressive range of state-of-the-art equipment for use by students in laboratory courses and independent research. Use of the following instruments by students begins in the first year and continues throughout all four years: FT-IR, CD, ultraviolet-visible and atomic absorption spectrophotometers; spectrofluorometers; 200 and 300 MHz FT-NMR spectrometer; HPLC's; a variety of gas chromatographs including an autosampling model and GC-mass spectrometer; refrigerated superspeed and ultracentrifuges; and molecular modeling workstations and a variety of microcomputers.

Faculty

Pamela G. Artz, Ph.D., associate professor, biochemistry – B.S., Albright College; Ph.D., University of Pennsylvania

Phillip L. Dougherty, professor, inorganic chemistry – B.S., M.A.T., M.S., Colorado State University; Ph.D., University of Denver

Christian S. Hamann, Ph.D., assistant professor, organic chemistry – A.A., Ocean County Community College; B.S., Lebanon Valley College; Ph.D., University of Pennsylvania

James E. Scheirer, Ph. D., professor, physical chemistry – B.S., Ursinus College; Ph.D., University of Pennsylvania

Frieda L. Texter, Ph.D., chair, department of chemistry and biochemistry and professor, biochemistry – B.S., Albright College; Ph.D., Purdue University

Eileen Walker, M.S., instructor, analytical chemistry - B.Sc., University College Cork; M.S., Villanova University