

# BIOCHEMISTRY

## What can I do with this major?

### AREAS

### EMPLOYERS

### STRATEGIES

#### RESEARCH

Basic Research  
Applied Research  
Grant Writing  
Administration

#### **Some areas of specialization:**

Healthcare: virology, immunology, enzymology  
Pharmacology: drug properties, interactions, application and development  
Environmental: testing, air/water/waste management, regulation  
Agricultural: crop production, herbicide/pesticide development and application  
Food science: preservation, nutrition  
Cosmeceutical: development and application  
Forensic: toxicology, DNA analysis, scientific instrumentation

University laboratories  
Federal government laboratories/agencies:  
National Science Foundation  
National Institutes of Health  
Food and Drug Administration  
Environmental Protection Agency  
Department of Agriculture  
Department of Energy  
Armed Services  
State and local government laboratories/agencies  
Public health departments  
Hospital laboratories  
Commercial medical laboratories  
Private testing laboratories including forensics  
Independent research foundations  
Industries:  
Pharmaceutical  
Biotechnology  
Food processing  
Cosmetic  
Chemical  
Petroleum  
Agricultural

Bachelor's degree in biochemistry, biology, or chemistry qualifies one for laboratory technician or research assistant positions.  
Choose courses with laboratory components to build experimental and instrumentation skills.  
Gain experience in area of interest through internships, research with professors and/or complete a senior research project.  
Complete a certificate training program, usually one year, to learn specialized laboratory techniques.  
Take a course in grant writing.  
Earn master's degree in biochemistry for advanced positions, greater responsibility, and higher pay.  
Obtain Ph.D. to direct research projects and lead research teams.

#### TEACHING

Elementary  
Secondary  
Post-secondary  
Non-classroom settings

Public and private schools, K-12  
Two-year community colleges/technical institutes  
Four-year institutions  
Professional schools including colleges of pharmacy, dentistry, medicine, veterinary medicine, and agriculture  
Museums  
Zoos  
Nature centers and parks

Develop excellent communication skills.  
Volunteer with and/or tutor target age group.  
Complete an accredited education program for certification/licensure in biology and/or chemistry.  
Earn a master's degree for teaching at some two-year institutions.  
Prepare to attend graduate school by maintaining a high grade point average and securing strong faculty recommendations.  
Complete Ph.D. for college or university teaching.

## AREAS

## EMPLOYERS

## STRATEGIES

### HEALTHCARE

Medicine  
Dentistry  
Optometry  
Podiatry  
Pharmacy  
Chiropracty  
Veterinary Medicine  
Occupational Therapy  
Physical Therapy  
Public Health

Hospitals  
Colleges or universities  
Medical centers and clinics  
Private and group practice  
Health networks  
Nursing homes  
Rehabilitation centers  
Correctional facilities  
Large corporations  
Armed services  
Government agencies  
State and local public health departments

Plan on attending medical school or other related graduate program.  
Maintain an outstanding grade point average, particularly in the sciences.  
Meet with a pre-health advisor periodically.  
Join related student organizations. Demonstrate leadership abilities.  
Volunteer to work in a hospital or healthcare setting.  
Find a summer job or internship in a hospital.  
Secure strong faculty recommendations.  
Research all of the various fields within medicine to determine a particular career goal.  
Develop a back up plan in case medical/graduate school admission is denied.

### OTHER PROFESSIONAL OPPORTUNITIES

Sales/Marketing  
Technical Writing  
Scientific Journalism  
Scientific Illustration  
Regulatory Affairs  
Administration/Management  
Scientific/Technical Recruiting  
Intellectual Property/Patent Law  
Bioinformatics

Biotechnology industry  
Pharmaceutical and chemical companies  
Publishers:  
    Textbook, magazine, newspaper, book  
Software firms  
Regulatory agencies  
Search firms  
Law firms  
Legal departments of corporations

Supplement biochemistry degree with coursework in chosen field.  
Gain sales experience through internships, part-time work, or summer jobs for sales positions.  
Take business and/or computer classes.  
Become familiar with desktop publishing and other software packages.  
Develop strong written and oral communication skills.  
Get experience writing for a school or local newspaper.  
Obtain an MBA or Ph.D. to reach high levels of administration.  
To pursue a J.D., participate in mock trial and pre-law associations, learn law school admissions process.

### **GENERAL INFORMATION**

- Biochemists are typically curious and creative with strong observational skills and the ability to persevere.
- Biochemists often interact with scientists from other disciplines. Learn to work independently and as part of a team.
- Develop the ability to communicate clearly to compile and share results in oral and written forms.
- Gain competencies in computers and mathematics.
- Read scientific journals to stay current on relevant issues in the field, and join related professional organizations to network and build contacts.
- As an undergraduate, seek laboratory experiences such as research projects, volunteering with professors, summer jobs, or internships.
- Visit government laboratories or research centers to learn more about opportunities in biochemistry. Schedule informational interviews to learn about the profession and specific career paths.
- Participate in research programs sponsored by organizations like the National Science Foundation and the National Institutes of Health.
- Consider a certificate program or specialized master's program to qualify for research technician positions.
- Become familiar with the specific entrance exam for graduate or professional schools in your area of interest.
- Maintain a high grade point average, and secure strong faculty recommendations.
- Earn master's degree for greater variety and autonomy on the job.
- Earn Ph.D. to work on high-level research projects, to direct research programs, to enter high levels of administration, and to teach at four-year post-secondary institutions. Postdoctoral fellowships may also be required.
- Combine an undergraduate degree in biochemistry with a degree in law, computer programming, business, education, information science, or other discipline to expand career opportunities.
- Learn the job application process for government positions.