Biochemistry

Research

- Healthcare: clinical research, medical devices, and equipment
- Pharmacology: drug properties, interactions, application, and development
- Environmental: testing, air, water, and waste management, regulation
- Agricultural: crop production, herbicide/pesticide development and application, bio-remediation
- Food science: preservation, nutrition
- Cosmeceutical: development and application
- Forensic: toxicology, DNA analysis, scientific instrumentation

Research Employers

- 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
  - Department of Defense
- State and local government laboratories/agencies
- Public health departments
- Hospital laboratories
- Commercial medical laboratories
- Private testing laboratories including forensics
- Independent research foundations
- Industries:
  - Biotechnology: pharmaceutical and medical device/equipment
  - Food processing
  - Cosmetic
  - Chemical
  - Petroleum
  - Agricultural

Research Strategies

- 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. Certification requirements vary by state.
- Develop strong communication and interpersonal skills for sharing data as well as collaborating with multi-disciplinary teams of scientists.
- Take a course in grant writing, as many scientists and professors seek funding to support their research and teaching.
- Earn a master's degree or Ph.D. to advance into college or university teaching or for directing scientific research in government laboratories or industry.
- Consider pursuing a postdoctoral fellowship, generally two-three years, after earning a Ph.D. to gain additional research experience.

Healthcare

- Medicine
- Dentistry
- Optometry
- Podiatry
- Pharmacy
- Chiropracty
- Veterinary medicine
- Occupational therapy
- Physical therapy
- Public health

Healthcare Employers

- 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

Healthcare Strategies

- Plan to attend medical school or other related graduate program.
- Meet with a pre-health adviser periodically to discuss curricular decisions.
- Research accredited institutions. Check graduation rates, success rates on licensing exams, cost, location, etc.
- Consider pursuing certification as a medical laboratory technologist or technician. Licensure varies by state.
- Secure strong faculty recommendations who will attest to your interest in the healthcare field as well as your academic ability and work ethic.
- Research the various fields within healthcare to determine a particular career goal.
- Develop a parallel 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

Other Professional Employers

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

Other Professional Opportunities Strategies

- Supplement biochemistry degree with either additional coursework or a minor in a specialty area such as journalism, technical writing, business, or mathematics.
- Become familiar with desktop publishing and other software packages particularly for communications-related positions.
- Gain experience through internships, part-time work, or summer jobs to test interest in a field and network. According to your goal, consider writing for the school newspaper, working at your campus computer lab, or pursuing sales/marketing opportunities.
- Be prepared to start in entry-level business positions such as management trainee programs.
- Obtain an MBA or Ph.D. to reach high levels of management and administration.
- To pursue a J.D., participate in mock trial and pre-law associations and research the law school admissions process.

General Biochemistry Information

- A bachelor's degree will qualify one for work as a laboratory assistant, technician, technologist, or research assistant in education, industry, government, museums, parks, and gardens.
- Biochemists are typically curious and creative with strong observational and analytical skills as well as the ability to persevere through lengthy research projects. They demonstrate competence in laboratory methods, computer science, and mathematics.
- As an undergraduate, seek laboratory experiences such as research projects, volunteering with professors, summer jobs, or internships.
- Develop the ability to communicate effectively to compile and share results in oral and written forms.
- Biochemists often interact with scientists from other disciplines. Learn to work independently and as part of a team.
- Read scientific journals to stay current on relevant issues in the field and join related professional organizations to network and build contacts.
- 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.
- Become familiar with the specific entrance exam for graduate or professional schools in your area of interest.
- Earn a master's degree to specialize in a particular research area and to teach at some two- and four-year institutions.
- Earn a Ph.D. to direct research projects, 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.
- Research the job application process for government positions. Seek guidance from career center staff for assistance.