Biology

Research and Development

- Basic Research
- Applied Research
- Quality control
- Administration
- Grant writing

Research and Development Employers

Industry and laboratories:

- Pharmaceutical, healthcare, agriculture, food processing and safety, environmental, biotechnology

Private research institutions

Public health departments

State and federal government:

- National Science Foundation, National Institutes of Health, Centers for Disease Control and Prevention, Food and Drug Administration, Environmental Protection Agency, Department of Agriculture, Armed Services, and Department of Homeland Security

Colleges and universities

Research and Development Strategies

- Learn to set up, operate, and maintain laboratory instruments and equipment, and monitor experiments.
- Select courses with laboratory components, and seek research experience with professors.
- Complete a certificate training program, usually one year, to learn specialized laboratory techniques.
- Take a course in grant writing, as often research is grant-funded.
- A bachelor's degree in biology qualifies one for laboratory technician or research assistant positions.
- Earn master's degree for advancement opportunities, more responsibility and higher pay.
- Obtain Ph.D. to direct research projects and lead research teams.

Healthcare

- Medicine
- Dentistry
- Optometry
- Podiatry
- Pharmacy
- Veterinary medicine
- Occupational therapy and physical therapy
- Medical technology
- Nuclear medicine

Healthcare Employers

- Group or private practice
- Hospitals
- Clinics
- Health networks
- Nursing homes
- Rehabilitation centers
- Mental health institutions
- Federal, state, and local health departments
- Government agencies
- Armed services
- Correctional facilities
- Colleges or universities
- Medical schools
- Large corporations

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. Join related student organizations and demonstrate leadership abilities.
- Seek experience in healthcare settings through volunteering, shadowing, part-time jobs, or internships.
- Research various fields within medicine to determine career goals, and develop a back-up plan in case medical/graduate school admission is denied.

Biomedical Sciences

- Biophysics
- Biochemistry
- Cellular and molecular biology
- Genetics
- Immunology
- Pathology
- Pharmacology
- Physiology
- Virology

Biomedical Sciences Employers

- Colleges and universities
- Professional schools: colleges of pharmacy, dentistry, medicine, veterinary medicine, and agriculture
- Federal government:
  - National Institutes of Health
  - Centers for Disease Control and Prevention
  - Food and Drug Administration
- State and local public health departments
- Clinics and hospitals
- Private research foundations
- Independent laboratories
- Pharmaceutical companies

Biomedical Sciences Strategies

- Gain laboratory experience through coursework and faculty-led research projects.
- Learn to set up, operate, and maintain laboratory instruments and equipment, and monitor experiments.
- Seek internships, part-time employment and volunteer opportunities in the biomedical field. Utilize your campus career center for assistance securing government internships.
- Take courses in area(s) of specialization, such as genetics or pharmacology.
- Join student chapters of professional organizations related to your area of interest to maintain knowledge of your desired field.
- Obtain a Ph.D. for teaching and advanced research and management positions, which requires navigating a competitive admissions process with strong faculty recommendations, grades, and relevant experience.

Organismal and Ecological Biology

- Botany
- Ecology
- Conservation biology
- Entomology
- Marine biology
- Genetics
- Microbiology
- Taxonomy
- Zoology

Organismal and Ecological Biology Employers

- Colleges and universities, especially colleges of agriculture and veterinary medicine
- Veterinary hospitals
- State and federal government:
  - National Science Foundation
  - National Institutes of Health
  - Centers for Disease Control and Prevention
  - Food and Drug Administration
  - Environmental Protection Agency
  - Department of Agriculture
- Independent laboratories:
  - Food production
  - Textiles
  - Agriculture
  - Pharmaceutical
- Zoos and aquariums
- Fish hatcheries
- Wildlife preserves and parks
- Conservation agencies
- Botanical gardens and arboretums
- Museums
- Agricultural experiment stations
- Inspection agencies and control boards
- National and international environmental organizations
- Private recreation organizations

Organismal and Ecological Biology Strategies

- Conduct research or assist in research including the collection of information and samples of water, soil, plants, animals, etc.
- Pursue extensive laboratory and research experience by working with faculty, through independent research classes, as a student employee, or through other departmental programs.
- Seek additional coursework in an area of specialty (e.g., botany, ecology, genetics).
- Join student chapters of professional organizations related to your area of interest.
- Build relationships with faculty who can serve as graduate school references, and maintain a high GPA for competitive admission to medical school.
- Obtain a Ph.D. for teaching, advanced research, and management positions.

Biotechnology

- Medicine
- Agriculture
- Food science
- Biological engineering
- Bioremediation
- Environmental protection/Regulation

Biotechnology Employers

Biotechnology companies:

- Agricultural chemicals
- Good safety
- Pharmaceutical
- Medical device and equipment
- Research and testing

Federal government:

- National Institutes of Health
- Centers for Disease Control
- Food and Drug Administration
- Environmental Protection Agency
- Department of Agriculture

Plant propagation and production businesses

Colleges and universities

Biotechnology Strategies

- Gain practical experience conducting research, collecting and analyzing data, and using laboratory/field techniques in collaboration with professors and through internships.
- Hone your ability to gather, assess, evaluate, interpret, and share technical and scientific information.
- Seek current knowledge of medical, agricultural, pharmaceutical, or environmental issues, trends, regulations.
- Join horticultural, agronomy, biotechnology clubs or other student professional associations to network and cultivate related academic interests.
- Pursue a master's or doctoral degree to specialize and for advancement in the field. Some federal and private agency and research positions require a graduate degree.

Bioinformatics

- Algorithm and statistical techniques
- Data analysis and interpretation
- Information management
- Organization and retrieval

Bioinformatics Employers

Colleges and universities

Private research foundations

Software development firms

Biotechnology companies:

- Agricultural chemicals
- Pharmaceutical
- Medical device and equipment
- Research and testing

Federal laboratories and regulatory agencies:

- National Institutes of Health
- Food and Drug Administration
- Environmental Protection Agency
- Department of Agriculture

Bioinformatics Strategies

- Develop multiple areas of specialization through coursework, minors, double-majors in molecular biology, mathematics, statistics, computer science, or machine learning.
- Develop strong programming and database management skills; fluency in several programming languages is helpful.
- Learn biological software systems.
- Complete an internship in the areas of tool building, usage, or maintenance.
- Seek master's or Ph.D. degree for increased advancement opportunities.

Legislation and Law

- Lobbying
- Regulatory affairs
- Science policy
- Patent law
- Environmental law
- Nonprofit or public interest
- Mediation

Legislation and Law Employers

- Law firms
- Corporations
- State and federal government:
  - Department of Energy
  - Environmental Protection Agency
- Environmental compliance services companies
- Regulatory commissions
- Advocacy organizations

Legislation and Law Strategies

- Develop strong research and writing skills. Enhance communication skills through public speaking courses, debate team, or Toast Masters (a public speaking organization).
- Maintain current knowledge of industry trends, laws and policies specific to area of interest (e.g., environment, food safety, regulatory programs).
- Acquire internships in federal or state government. Utilize applicable websites and seek assistance from your college career center.
- Take courses in history, political science and/or legal studies to supplement science curriculum.
- To pursue a J.D., participate in mock trial and pre-law associations, learn law school admissions process.

Business

- Technical and pharmaceutical sales
- Management
- Consulting
- Marketing

Business Employers

Manufacturing companies:

- Food/feed
- Agricultural chemicals
- Pharmaceuticals
- Medical device and equipment
- Consumer products

Marketing firms

Consulting firms

Business Strategies

- Develop excellent communication and interpersonal skills, and demonstrate a high energy level.
- Take courses in anatomy, pharmacology, and chemistry to supplement curriculum. Consider a business minor.
- Join related student associations and pursue leadership positions.
- Be prepared to start in entry level positions, such as management trainee programs.
- Consider an MBA or Professional Science Master's to advance into higher levels of business management, consulting, research, and brand management.

General Biology 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
- An undergraduate degree can also be used for nontechnical work in writing, illustration, sales, photography, and legislation
- A master's degree allows for greater specialization in a field and more opportunities in research and Some community colleges will hire master's level teachers.
- Doctoral degrees are necessary for advanced research and administrative positions, university teaching, and independent research
- The biological sciences are good preparation for a career in healthcare that generally requires a professional degree and license such as medicine, dentistry, and veterinary science
- Learn laboratory procedures and become familiar with equipment
- Participate in summer research institutes. Submit research to local poster competitions or research symposiums.
- Develop strong analytical, computer, mathematics, scientific, and interpersonal communication skills.
- Read scientific journals related to your area of interest.
- Maintain a high grade point average to improve chances of graduate and professional school admission.
- Become familiar with the specific entrance exam for graduate or professional schools in your area of interest.
- Consider completing a post-doctoral experience after graduate school.
- Learn federal, state, and local government job application processes.
- Gain experience with grant writing and fundraising techniques, research is often grant-funded.