BIOLOGICAL SCIENCES

What can I do with this major?

AREAS	EMPLOYERS	STRATEGIES
RESEARCH AND DEVELOPMENT		
Basic Applied Quality Control Administration Grant Writing	Industry and laboratories: Pharmaceutical Healthcare Agriculture Food processing and safety Environmental 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 Department of Homeland Security Colleges and universities	Learn to set up, operate, maintain laboratory instruments and equipment, and monitor experiments. Select courses with laboratory components, and seek research experience with professors. Gain related experience through part-time jobs, internships, or volunteering. Complete a certificate training program, usually one year, to learn specialized laboratory techniques. Take a course in grant writing, as often research is funded in this manner. 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. Maintain a high grade point average and secure strong faculty recommendations to gain admittance into graduate school.
HEALTHCARE		
See also *What can I do with this major in medical fields?* Medicine Dentistry Optometry Podiatry Pharmacy Veterinary Medicine Allied Health: Occupational Therapy Physical Therapy Medical Technology Nuclear Medicine	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	Plan to attend medical school or other related graduate program. Meet with a pre-health advisor periodically to discuss curricular decisions. Maintain a high grade point average, particularly in the sciences, to improve chances of admission to graduate or professional school. Research accredited institutions. Check graduation rates, success rates on licensing exams, cost, location, etc. Speak with current students. Secure strong faculty recommendations. Join related student organizations and demonstrate leadership abilities.

AREAS	EMPLOYERS	STRATEGIES
HEALTHCARE CONTINUED		
		Seek experience in healthcare settings through volunteer, shadowing, part-time jobs, or internships. Research all of the various fields within medicine to determine career goals, and develop a back-up plan in case medical/graduate school admission is denied.
BIOMEDICAL SCIENCES Some Areas of Specialization: Biophysics Biochemistry Cellular and Molecular Biology Genetics Immunology Pathology Pharmacology Physiology Virology	Colleges and universities Professional schools including 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	Gain laboratory experience through coursework and through faculty-led research projects. Learn to set up, operate, 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.

AREAS	EMPLOYERS	STRATEGIES
ORGANISMAL/ECOLOGICAL BIOLOGY		
Structure, Function, Development, Evolution Some Areas of Specialization: Botany Ecology: Behavioral, community, ecosystem, evolutionary, population biology Conservation Biology Entomology Marine Biology Genetics Microbiology: Bacteria, algae, fungi, molds, yeasts, viruses, protozoa Taxonomy Zoology	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	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. Plan to gain related part-time jobs, internships, or volunteer experiences. Seek additional coursework in an area of specialty, i.e., 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 and advanced research and management positions.

AREAS	EMPLOYERS	STRATEGIES
BIOTECHNOLOGY		
Medicine Agriculture Food Science Biological Engineering Bioremediation Environmental Protection/Regulation	Biotechnology companies: Agricultural chemicals Food safety Pharmaceutical Medical device and equipment Research and testing Federal government: National Institutes of Health Food and Drug Administration Environmental Protection Agency Department of Agriculture Plant propagation and production businesses Colleges and universities	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. Maintain a strong grade point average to be competitive for graduate school admission.
BIOINFORMATICS		
Algorithm and Statistical Techniques Data Analysis and Interpretation Information Management Organization and Retrieval	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	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.

AREAS	EMPLOYERS	STRATEGIES
EDUCATION		
Teaching: Elementary Secondary Post-Secondary Non-classroom Education	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	Gain experience working with students through tutoring, part-time employment, or volunteering. Learn to work well with people of varying backgrounds and skills. Develop excellent interpersonal, communication, and content area knowledge. Complete a teacher preparation program for K-12 positions, which varies by state. A major in content area is required for secondary education in most states. Master's degrees may be sufficient for teaching at community or two-year institutions. Seek Ph.D. for teaching opportunities at colleges and universities.
COMMUNICATION		
Technical Writing Editing Illustrating Photography Public Relations	Publishing companies including scientific magazines, professional journals, periodicals, textbooks, and online publishers Newspapers Educational and scientific software companies Zoological and environmental societies Medical, dental, and veterinary colleges Research centers Federal government agencies Related nonprofit organizations Museums	Acquire thorough knowledge of photographic procedures and technology. Take specific courses in biological, medical, and ophthalmic photography; courses in illustration and printing are also helpful. Develop strong writing skills and command of the English language. Take advanced courses in technical writing or journalism classes or consider a minor in either. Join professional associations like the National Association of Science Writers or the Public Relations Student Society of America. Seek related volunteer or paid experiences with student/local publications to increase marketability. Consider earning an advanced degree in a communications field to specialize, i.e. scientific journalism or public relations.

AREAS	EMPLOYERS	STRATEGIES
LEGISLATION/LAW		
Lobbying Regulatory Affairs Science Policy Patent Law Environmental Law Nonprofit or Public Interest Mediation	Law firms Corporations State and federal government: Department of Energy Environmental Protection Agency Environmental compliance services companies Regulatory commissions Advocacy organizations	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, i.e. environment, food safety, regulatory programs, etc. 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/INDUSTRY		
Technical and Pharmaceutical Sales Management Consulting Marketing	Manufacturing companies: Food/Feed Agricultural chemicals Pharmaceuticals Medical device and equipment Consumer products Marketing firms Consulting firms	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. Seek experience through part-time jobs and internships in business; experience in sales may be necessary for some positions. 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 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 degrees allow for greater specialization in a field and more opportunities in research and administration. 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 such as medicine, dentistry, and veterinary science, and professional degrees and licenses are also necessary to practice in these fields.
- Learn laboratory procedures and become familiar with equipment.
- Obtain summer, part-time, volunteer, co-op, or internship experience to test the fields of interest and gain valuable experience. Take independent research classes if possible.
- Participate in summer research institutes. Submit research to local poster competitions or research symposiums.
- Develop strong analytical, computer, mathematics, and communications skills.
- Join professional associations and community organizations to stay abreast of current issues in the field and to develop networking contacts.
- 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.
- Secure strong relationships and personal recommendations from professors and/or employers.
- Consider completing a post-doctoral experience after graduate school.
- Learn federal, state, and local government job application process.
- Gain experience with grant writing and fund raising techniques. Often research must be funded in this manner.