PLANT BIOLOGY

What can I do with this major?

AREAS	EMPLOYERS	STRATEGIES
PLANT BIOLOGY - MAJOR SUBDISCIPLINES Anatomy Biochemistry Bioenergy Biophysics Cytology Ecology Ethnobotany Genetics Genomics Microbiology Molecular Biology Morphology Paleobotany Palynology Physiology Phytochemistry Systematics Systems Ecology Taxonomy	Colleges and universities Agricultural experiment stations Research organizations including Non-governmental organizations (NGOs) National laboratories Museums, herbaria, botanical gardens, arboretums U.S. Department of Agriculture branches including National Germplasm Resources Laboratory, Animal and Plant Health Inspection Service, National Arboretum, Forest Service, Food and Drug Administration Federal agencies including Departments of Interior and State, Public Health Service, National Aeronautics and Space Administration, the Smithsonian Institution, National Park Service, Environmental Protection Agency, Department of Energy State environmental agencies Environmental consulting companies Industries including petrochemical, chemical, lumber and paper, pharmaceutical, seed and nursery, produce, biological supply, and bio-	Develop organizational and laboratory skills, attention to detail and determination for successful scientific inquiry. Read plant biology journals and articles to stay abreast of current research in the field. Seek undergraduate field and research experiences independently or alongside professors. Apply for undergraduate research fellowships or other student research programs. Learn federal and state government job application processes. Join related professional associations. Maintain a high grade point average and develop strong faculty references in preparation for graduate school. Obtain a Ph.D. for teaching and advanced research positions.
APPLIED PLANT SCIENCE Agronomy Biotechnology Economic Botany Food Science and Technology Forestry Horticulture Natural Resource Management Plant Breeding Plant Pathology	Colleges and universities Agricultural experiment stations Research organizations Federal, state, and local government and regulatory agencies Agriculture industries including lumber and paper, seed and nursery, fruit and vegetable growers, fermentation, food and feed, biological supply Industries including petrochemical, pharmaceutical, and chemical Biotechnology firms Environmental consulting companies	Learn to set up, operate, maintain laboratory instruments and equipment, and monitor experiments. Develop strong communication skills for sharing data with technical and non-technical audiences. Seek undergraduate research opportunities independently or with professors. Take courses related to your area of interest; consider a minor or double major. Gain relevant experience through student organizations, volunteer positions, part-time work, or internships.

AREAS	EMPLOYERS	STRATEGIES
APPLIED PLANT SCIENCE CONTINUED		
		Obtain a Ph.D. for teaching, advanced research positions, and administration. Learn federal, state, and local government job application processes.
ORGANISMAL PLANT BIOLOGY - SPECIALTIES Bryology Lichenology Pteridology Mycology Phycology/Marine Botany Dendrology Agrostology	Colleges and universities Agricultural experiment stations Research organizations including NGOs State and federal agencies including Departments of Agriculture, Interior, and Health Museums, herbaria, botanical gardens, arboretums, aquaria Environmental consulting companies	Become familiar with laboratory procedures and equipment. Take courses in area(s) of specialization and/or consider an advanced degree. Assist a professor with research or find a part-time job in a laboratory. Seek related experience through part-time jobs, internships, or volunteering. Obtain a Ph.D. for teaching and advanced research and management positions.
EDUCATION Teaching Research Administration	Public and private high schools Colleges and universities Museums, herbaria, botanical gardens, arboretums	Gain experience working with students through tutoring, part-time employment, or volunteering. Learn to work well with all types of people. Develop excellent interpersonal and public speaking skills. Certification is required to teach in public schools and varies by state. Master's degrees may be sufficient for teaching at two-year institutions. Ph.D. is needed for teaching opportunities at colleges and universities.

AREAS	EMPLOYERS	STRATEGIES
PLANT BIOLOGY - COMMUNICATION		
Writing Editing Botanical Illustration Photography	Publishing companies including newspapers, magazines, books, and textbooks Professional associations Scientific and educational software companies Non-profit organizations	Develop strong writing skills, knowledge of photography, and accompanying technology. Pursue courses in photography; courses in illustration and printing may be helpful. 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. Seek related volunteer or paid experiences with student/local publications, magazines, newspapers, or publishers to increase marketability. Obtain an advanced degree in scientific journalism.
PLANT BIOLOGY - LEGAL APPLICATIONS		
Lobbying Regulatory Affairs Science Policy Patent Law Environmental Law Agricultural Law Biotechnological Law	Environmental and biotechnology law firms Government and regulatory agencies Lobbying firms	Participate on a debate or forensic team. Develop strong research and communication skills and attention to detail. Take courses in and gain experience with mediation and conflict resolution. Get involved with pre-law organizations. Obtain part-time work in law firms and/or internships in federal or state government. Plan to shadow attorneys to learn more about the field and various specialties. Maintain an excellent grade point average and secure strong faculty recommendations to gain law school admittance. Plan to take the LSAT. Earn a J.D. degree to practice law.
BUSINESS		
Marketing/Sales Management Consulting	Pharmaceutical companies Agricultural companies Biotechnology firms Scientific publishers Biological supply houses	Develop excellent communication and interpersonal skills, along with a high energy level. Obtain sales experience and/or a business minor for increased marketability. Join related student associations and seek leadership positions. Consider an MBA or Professional Science Master's for advanced management and consulting opportunities.

AREAS	EMPLOYERS	STRATEGIES
BIOINFORMATICS		
	Colleges and universities Private research foundations Independent laboratories including agricultural, pharmaceutical, research, testing, etc. Federal laboratories and regulatory agencies including National Institutes of Health, Food and Drug Administration, Environmental Protection Agency, Department of Agriculture Bioinformatics companies National Biological Information Infrastructure	Develop areas of specialization through coursework, minors, double-majors in 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 area of interest. Seek master's degree for increased advancement opportunities.

GENERAL INFORMATION

- Bachelor's degree qualifies one for work as a laboratory technician or technical assistant in education, industry, government, museums, parks, and gardens.
- Master's degree is needed for many technical positions in research and administration.
- Ph.D. is required for most advanced research and administrative positions or college teaching.
- Build good relationships with science professors and secure strong recommendations. Maintain a high GPA for graduate school admission.
- Obtain part-time, summer, co-op, volunteer, or internship experience with government agencies, college/university labs, agricultural experiment stations, freshwater and marine biological stations, or private companies.
- Complete one or more undergraduate research projects to explore specific areas of interest in plant biology.
- Maintain physical stamina if planning to conduct research in an outdoor environment.
- Join organizations concerned with environmental preservation, world food supply and other related areas. Read scientific journals related to plant biology.
- Develop an excellent background in mathematics and strong verbal and written communication skills.
- Select a broad range of courses in English, social sciences, arts, and humanities.
- Become proficient with computers and software applications.