# BOTANY

## What can I do with this major?

### AREAS

**PLANT BIOLOGY**
- Anatomy
- Biochemistry
- Biophysics
- Cytology
- Ecology Genetics
- Molecular Biology
- Morphology
- Paleobotany
- Physiology
- Systematics
- Systems Ecology
- Taxonomy

**APPLIED PLANT SCIENCE**
- Agronomy
- Biotechnology
- Breeding
- Economic Botany
- Food Science and Technology
- Forestry
- Horticulture
- Natural Resource Management
- Plant Pathology

### EMPLOYERS

**PLANT BIOLOGY**
- Research organizations
- Colleges and universities
- Museums
- Botanical gardens and arboretums
- U.S. Department of Agriculture branches
  - including Medical Plant Resources Laboratory, Germplasm Resources Laboratory, Animal and Plant Health Inspection Service, National Arboretum, U.S. Forest Service
- Federal agencies including Departments of Interior and State, U.S. Public Health Service, National Aeronautics and Space Administration, the Smithsonian Institution, and Environmental Protection Agency
- State agencies
- Environmental and biotechnical regulatory agencies
- Ecological consulting companies
- Industries including petrochemical, chemical, and lumber and paper
- Companies including pharmaceutical, food, seed and nursery, fruit growers, biological supply houses, and biotechnology firms

**APPLIED PLANT SCIENCE**
- Colleges and universities
- Research organizations
- Agriculture industry including lumber and paper, seed and nursery, fruit and vegetable growers, fermentation, food industry, and biological supply houses
- Biotechnology firms

### STRATEGIES

**PLANT BIOLOGY**
- Obtain a Ph.D. for teaching and advanced research positions.
- Conduct undergraduate research with professors to gain experience.
- Apply for undergraduate research fellowships or other student research programs.
- Maintain a high grade point average and develop good references in preparation for graduate school.
- Develop excellent computer skills.
- Join related professional associations.
- Read scientific journals or articles to stay abreast of current research.
- Learn federal and state government job application process.

**APPLIED PLANT SCIENCE**
- Take courses or double major in your area of interest.
- Gain relevant experience through volunteer positions, part-time work, or internships.
- Obtain a Ph.D. for teaching, advanced research positions, and administration.
- Learn a foreign language for international work such as plant studies in the tropics.
## AREAS

**Applied Plant Science, Continued**

| Industries including petrochemical, pharmaceutical, and chemical |
| Ecological consulting companies |
| Federal, state, and local government agencies |
| Environmental and biotechnical regulatory agencies |

## EMPLOYERS

**Applied Plant Science, Continued**

| Colleges and universities |
| Research organizations |
| Federal and state government laboratories including Agriculture, Health, etc. |
| Pharmaceutical companies |
| Food and beverage industries including brewing and fermentation |
| Hospitals |
| Related industries |

## STRATEGIES

**Applied Plant Science, Continued**

- Learn federal, state and local government job application process.

## ORGANISMIC SPECIALTIES

- Bryology
- Lichenology
- Microbiology
- Pteridology
- Mycology
- Phycology/Marine Botanists

## EDUCATION

- Teaching
- Research
- Administration

| Public and private high schools |
| Colleges and universities |
| Museums, botanical gardens and herbaria |

## COMMUNICATION

- Writing
- Editing
- Botanical Illustration

| Publishing companies including newspapers, magazines, books, and textbooks |
| Professional associations |
| Scientific and educational software companies |
| Non-profit organizations |

- Take courses in technical writing, journalism, or illustration.
- Develop word processing and desktop publishing skills or computer-aided design.
- Find an internship with a magazine, newspaper, or publisher.
- Obtain a master's degree in scientific journalism.

- Gain experience working with technology.
- Become familiar with laboratory procedures and equipment.
- Assist a professor with research or find a part-time job in a laboratory.
- Obtain a graduate degree in area of interest.

- Gain certification or licensure for high school science teaching.
- Obtain a Ph.D. for positions in college teaching and research.
- Gain experience through tutoring.

- Learn to work well with different types of people.
### LAW

<table>
<thead>
<tr>
<th>Area</th>
<th>Law firms with environmental focus</th>
<th>Government agencies and regulatory agencies</th>
<th>Biotechnical regulatory firms or agencies</th>
<th>Obtain law degree after completion of bachelor's degree.</th>
<th>Gain relevant experience by working at a law firm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agricultural</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biotechnological</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### BUSINESS

<table>
<thead>
<tr>
<th>Area</th>
<th>Pharmaceutical companies</th>
<th>Seed companies</th>
<th>Biotechnology firms</th>
<th>Scientific publishers</th>
<th>Biological supply houses</th>
<th>Earn a minor in business.</th>
<th>Hold leadership positions in campus organizations.</th>
<th>Join related professional associations.</th>
<th>Develop good communication skills; take a course in public speaking.</th>
<th>Learn various software packages including spread sheets, databases, and word processing.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales/Marketing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administration/Management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### COMPUTER PROGRAMMING

<table>
<thead>
<tr>
<th>Area</th>
<th>Scientific and educational software companies</th>
<th>Double major or minor in computer programming.</th>
<th>Gain related work experience through internships or part-time and summer jobs.</th>
</tr>
</thead>
</table>

### 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 opens some opportunities in research and administration.
- Ph.D. is required for advanced research and administrative positions or college teaching. Most plant scientists work in higher education.
- Build good relationships with science professors and secure strong recommendations. Maintain a high g.p.a. 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 an undergraduate research project to decide on a specific area of interest in botany.
- Enjoy outdoor activities if planning to conduct research in an outdoor environment.
- Join organizations concerned with the world food supply and other related areas. Read scientific journals related to botany.
- 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.
PROFESSIONAL ASSOCIATIONS
  o *Botanical Society of America: Careers
  o *American Society for Horticulture Science
  o American Phytopathological Society
  o Garden Club of America

OCCUPATIONAL OUTLOOK INFORMATION
  o Agricultural and Food Scientists
  o Forensic Science Technicians
  o Teachers-Postsecondary
  o Biological and Medical Scientists
  o Scientific Research Industry Guide

MISCELLANEOUS CAREER INFORMATION
  o Careers in Science and Engineering
  o Science Jobs in the Federal Government
  o U.S. Department of Agriculture
  o U.S. Department of Agriculture: Cooperative State Research, Education, Extension Service
  o U.S. Department of Energy
  o U.S. Environmental Protection Agency
  o National Institutes of Health
  o National Science Foundation
  o Earthwatch Institute
JOB POSTINGS
  o Science Careers

* = Recommended Sites