

# PLANT SCIENCES

## What can I do with this major?

### AREAS

### EMPLOYERS

### STRATEGIES

#### **BIOENERGY**

Plant breeding  
Crop science  
Feedstocks  
Production and processing  
Regulation  
Consulting  
Biofuel transportation, distribution, and sales

Biofuel companies  
Colleges and universities  
Research organizations  
Feedstock supply companies  
Federal laboratories and regulatory agencies:  
US Department of Agriculture  
Environmental Protection Agency

Seek experience in the bioenergy field through research with faculty, internships, or part-time jobs.  
Build close relationships with faculty who can provide strong recommendations for graduate school.  
Maintain knowledge of current alternative energy and product industry trends and regulations.  
Supplement program with courses such as finance, marketing, management, etc. to increase understanding of business theory.  
Purse a master's or Ph.D. for increased research opportunities.

#### **BIOTECHNOLOGY**

Plant tissue culture  
Plant breeding  
Genetic engineering  
Textiles (e.g., enzymes, novel fibers, medical)  
Bioinformatics

Colleges and universities  
Research organizations  
Agricultural and pharmaceutical companies  
Federal laboratories and regulatory agencies:  
US Food and Drug Administration  
US Department of Agriculture  
Environmental Protection Agency  
Plant propagation and production businesses  
Biotechnology companies

Gain practical laboratory, greenhouse or field experience in collaboration with professors and through internships.  
Join horticultural, agronomy clubs, or other student professional associations to network and cultivate related academic interests.  
A master's or doctoral degree may be necessary for advancement. 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.

## AREAS

## EMPLOYERS

## STRATEGIES

### HORTICULTURE SCIENCE AND PRODUCTION

Plant breeding  
Vegetable, fruit, ornamental crop production  
Greenhouse and nursery management  
Sales  
Marketing

Nurseries, greenhouses, florists, and other wholesale and retail companies  
Plant propagation and production businesses  
Agribusinesses  
Harvesting companies  
Agrichemical companies  
Consulting firms  
State and federal departments of agriculture  
Extension offices  
High schools, colleges, and universities  
Self-employment

Seek work in areas such as crop production and greenhouse operations to build skills and experience.  
Assist a professor with a research project.  
Join horticultural, agronomy clubs, or other student professional associations to network.  
Seek additional training in business to advance into management positions.  
Become a Certified Horticulturist through the American Society for Horticulture Science.  
A master's or doctoral degree may be necessary for some positions in private companies and government organizations.  
Maintain a strong grade point average to be competitive for graduate school admission.  
Research extension and teacher education programs for working with youth.

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### LANDSCAPE DESIGN

Ecological/Environmental restoration  
Residential/Commercial design  
Landscape construction  
Landscape maintenance/Management  
Specialty Installation (e.g., irrigation systems, ponds, rockscapes, lighting)  
Sales and contracting

Landscape design companies  
Garden centers  
Parks, amusement parks, and zoos  
Golf courses  
Sport fields  
Cemeteries  
Large hotels and resorts  
Industrial sites  
Colleges and universities  
Local/city governments  
State highway departments  
Self-employment

Seek practical experience through internships, summer and part-time jobs at garden centers or with landscape contractors to learn more about the industry  
Develop computer aided design (CAD) and effective communication skills for conferring with clients.  
Obtain a minor in business, agricultural economics, or agricultural leadership if interested in management or self-employment.  
Consider earning a landscape architect degree and obtain professional certification as a landscape architect. Requirements vary by state.  
Participate in the National Association of Landscape Professionals student competition.

## AREAS

## EMPLOYERS

## STRATEGIES

### ORGANIC PRODUCTION

Crop production  
Greenhouse and nursery management  
Sales and marketing  
Organic certification  
Product development

Organic Farms  
Non-profit organizations  
Agribusinesses  
State and federal departments of agriculture  
Plant propagation and production businesses  
Agrichemical companies  
Colleges and universities  
Self-employment  
High-end produce buyers  
Local tourism departments

Pursue experience in organic production through work at organic greenhouses, farms or agribusinesses.  
Seek involvement with local farmers' markets, community food projects, and other sustainable agriculture initiatives.  
Join student chapters of professional associations to network in the industry.  
Become a Certified Horticulturist through the American Society for Horticulture Science.  
Research extension and teacher education programs for working with youth which vary by state.  
Become familiar with certification programs for organic produce.

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### PUBLIC HORTICULTURE

Education/Outreach  
Urban horticulture  
Urban forestry  
Horticulture therapy  
Plant collections  
Research  
Communications  
Management  
Facilities and maintenance

Public and botanic gardens  
Arboreta and conservatories  
Museums  
Radio and television stations  
Magazines, newspapers, and internet sites  
Zoos and aquariums  
Cities and parks  
State highway departments  
Cemeteries  
Theme parks  
Universities  
Extension offices  
Hospitals and therapy centers  
Nursing homes and senior centers  
Freelance writer

Develop excellent writing and speaking skills, as those interested in public horticulture work extensively with people. Photography skills may be advantageous for some career paths.  
Join student organizations to develop leadership and communication skills.  
Gain related experience through internships or part-time jobs in public gardens or parks.  
Earn the Horticultural Therapist-Registered (HTR) credential for plant therapy through The American Horticulture Therapy Association or become a Certified Horticulturist through the American Society for Horticultural Science.  
Obtain teacher certification for public school positions.

## AREAS

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### **TURFGRASS SCIENCE AND MANAGEMENT**

Golf course management  
Sport turf management  
Sod production  
Residential/Commercial lawn installation and management  
Irrigation systems  
Agrichemicals  
Sales and service  
Green industry consulting

Golf courses  
Lawn care companies  
Colleges and universities  
Sport and athletic fields  
Local/city governments  
Parks and amusement parks  
Sod production farms  
Pest management companies  
Landscape companies  
Irrigation firms  
Self-employment

Obtain practical experience with golf courses and other turf businesses through internships or summer and part-time jobs.  
Participate in relevant campus organizations (e.g., the Turf Club or Horticulture Club).  
Develop effective communication skills, particularly for leading crews of employees. Pursue a minor in business, agricultural economics, or agricultural leadership for management or self-employment.  
Gain knowledge of federal, state and local laws and regulations governing operations and management of sports fields and facilities.  
Research professional certifications in the field including Certified Golf Course Superintendent (CGCS) and Certified Sports Field Manager (CSFM).

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### **GENERAL INFORMATION**

- For entry level positions in most areas of plant sciences, a bachelor's degree is sufficient.
- Depending upon specialty area, supplement curriculum with supporting courses: business, journalism, planning, geology, entomology, soils or biology. Take communications courses to develop oral and written skills.
- Majoring in two subject areas or pursuing a minor can increase marketability. For example, study in landscape design and business, or public horticulture and journalism, can lead to greater opportunities.
- Internship experiences with well-known organizations aid students when seeking employment.
- A graduate degree may be necessary for advancement in some fields.
- Master's degrees allow for 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.
- Join professional associations and community organizations to stay abreast of current issues in the field and to develop networking contacts.
- Secure strong relationships and personal recommendations from professors for graduate school admission.
- Consider completing a post-doctoral experience after graduate school.
- Meet with career center staff that can assist with government job searches.