



THE UNIVERSITY
OF ARIZONA

Interested in producing and managing plants
in a way that conserves natural resources?

B.S., Sustainable Plant Systems



Controlled Environment Agriculture

Develop technologies to efficiently produce plants and plant-based products, with optimized resource consumption, using environmentally, socially and economically sustainable growing systems in arid lands and urban settings.



Environmental Horticulture

Discover methods for producing and managing edible and ornamental plants while minimizing inputs and environmental impact and promoting human health and economic well-being.



Agronomy

Develop low water use and disease resistant plants that maximize crop yield and plant health in field production where marginal lands often constrain plant production.



Fresh Produce Safety

(A Yuma-based program.) Understand how production chains become contaminated with diseases, and learn Good Agricultural Practices (GAP) for field and harvest of leafy greens, and fresh vegetable food safety.

For more information contact an advisor:

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Why major in Sustainable Plant Systems?



❑ **Top jobs in progressive fields.** Our majors go on to graduate school or work in industry research and development. Many work for large companies, for government or are self-employed business owners. They work in disciplines ranging from sustainable agriculture, plant production, land management, international development and agri-business to ecology, engineering and biofuels production.

❑ **An outstanding learning environment.** Our majors enjoy an interdisciplinary environment with small class sizes, a low student-to-faculty ratio, scholarships, internships, and opportunities for travel. Students gain hands-on experience in real-life applications of soil, water and plant sciences including soil chemistry, water harvesting and plant nutrition, plant breeding, propagation and hydroponics.

❑ **Hands-on learning experiences.** Sustainable Plant Systems majors engage in pioneering research and training with internationally recognized faculty in developing plant production and landscape management systems such as the Controlled Environment Agriculture Center, Herbarium, Campus Arboretum and diverse field stations and agricultural centers throughout AZ.

❑ **A chance to change the world.** Plants are the foundation of biodiversity, global climate and the sustainability of our planet. Increased yields, reduced use of agricultural lands and improved production efficiency are key to healthy ecosystems and sustained human life on earth.

SPS Plan Requirements 2016-17

General Education	Course	Units
First Year Composition 1	ENGL 101	3
First Year Composition 2	ENGL 102	3
General Education, Tier 1	TRAD 1	3
General Education, Tier 1	TRAD 2	3
General Education, Tier 1	INDV 1	3
General Education, Tier 1	INDV 2	3
General Education, Tier 2	Humanities	3
General Education, Tier 2	Individuals & Societies	3
General Education, Tier 2	Arts	3
Foreign language	various	0-8
General Science Core	Course	Units
Calculus	MATH 122b (124 or 125)	5
General Chemistry 1	CHEM 151	4
General Chemistry 2	CHEM 152	4
Organic Chemistry 1	CHEM 241A	3
Introduction to Statistics and Biostatistics OR Intro to Stat Methods OR Stat Inference OR Intro to Statistics	MATH 263 OR MAT 363 OR MGMT 276 OR SBS 200	3
Introductory Physics	PHYS 102	3
ECOL 182R Intro Biol II or MCB181R Intro Biol I is strongly recommended but not required.		
Career Preparation and Sub-Plan	Course	Units
Careers in Environmental Science OR How to Feed & Clothe 9 Billion People in 2050	ENVS 195B OR PLS 195A	1
Communication – Scientific Writing OR Translating Environmental Science OR Technical Writing OR Applied Organizational Communication OR Business Writing OR Environmental Journalism OR Science and the News OR Covering Science and the Environment OR Science Journalism OR Science Communication	ENVS 408 OR ENVS 415 OR ENGL 308 OR COMM 312 OR ENGL 307 OR JOUR 455 OR JOUR 305 OR JOUR 465 OR JOUR 472 OR SCI 401	3
Senior Capstone	PLS 498	2
Principles of Economics	ECON 201A	3
Sub-plan requirements and electives Choose Controlled Environment Agriculture OR Environmental Horticulture OR Agronomy OR Fresh Produce Safety	Choose 1	62

1 Controlled Environment Agriculture Sub-Plan	Course	Units
Soil & Water Science Core		
Introduction to Soil Science	ENVS 200/201	4
Soil Fertility & Plant Nutrition	ENVS 316	3
Manage Arid Lands & Salt-Affected Soils	ENVS 401	3
Soil Genesis, Morph, & Classification	ENVS 431	3
Environmental Physics OR Soil Physics	ENVS 420 OR ENVS 470	3
Plant Science Core	Course	Units
Plant Biology	PLS 240	4
Animal and Plant Genetics	PLS 312	4
Plant Growth and Physiology	PLS 360	3
Plant Propagation, Production and Management	PLS 330	4
Insect Pest Management OR Introductory Plant Path	ENTO 468 OR PLP 305	3
Required Courses		
Controlled Environment Production	PLS 217	3
Advanced Greenhouse Crop Production	PLS 397B	3
Physiology of Plant Production in Controlled Environments	PLS475A	3
Electives:	Various	19
2 Environmental Horticulture Sub-Plan	Course	Units
Soil & Water Science Core		
Introduction to Soil Science	ENVS 200/201	4
Soil Fertility & Plant Nutrition	ENVS 316	3
Manage Arid Lands & Salt-Affected Soils	ENVS 401	3
Soil Genesis, Morph, & Classification	ENVS 431	3
Environmental Physics OR Soil Physics	ENVS 420 OR ENVS 470	3
Plant Science Core	Course	Units
Plant Biology	PLS 240	4
Animal and Plant Genetics	PLS 312	4
Plant Growth and Physiology	PLS 360	3
Plant Propagation, Production and Management	PLS 330	4
Insect Pest Management OR Introductory Plant Path	ENTO 468 OR PLP 305	3
Required Courses		
Physiology of Plant Production in Controlled Environments	PLS 475A	3
Electives:	Various	25
3 Agronomy Sub-Plan	Course	Units
Soil & Water Science Core		
Introduction to Soil Science	ENVS 200/201	4
Soil Fertility & Plant Nutrition	ENVS 316	3
Manage Arid Lands & Salt-Affected Soils	ENVS 401	3
Soil Genesis, Morph, & Classification	ENVS 431	3
Environmental Physics OR Soil Physics	ENVS 420 OR ENVS 470	3
Plant Science Core	Course	Units
Plant Biology	PLS 240	4
Animal and Plant Genetics	PLS 312	4
Plant Growth and Physiology	PLS 360	3
Plant Propagation, Production and Management	PLS 330	4
Insect Pest Management OR Introductory Plant Path	ENTO 468 OR PLP 305	3
Required Course		
Crop Science and Production	PLS 306	3
Electives:	Various	25
4 Fresh Produce Safety Sub-Plan		
See http://goo.gl/dE2Ttb for program details		

Sustainable Plant Systems Minor

Students may select a Minor in Sustainable Plant Systems while majoring in a complementary alternate field of study. This minor requires twenty two units, regardless of department guidelines for minors. A minimum of nine units must be unique to this minor.

Sustainable Plant Systems Minor	Course	Units
General Sciences Courses		
Colloquia	ENVS 195B OR PLS195A	1
Intro. Chemistry I	CHEM 151	4
Intro. Soil Science	ENVS 200	3
Intro. Soil Science Lab	ENVS 201	1
Plant Biology	PLS 240	4
Upper Division Courses		9
TOTAL:		22

Sustainable Plant Systems Major

Four-Year Sample Plan

SEMESTER 1	16	SEMESTER 5	16
ENGL 101 English Composition	3	Elective	3
MATH 124 Calculus	5	PLS 405 Weed Science	3
CHEM 151 General Chemistry	4	TIER II	3
TIER I	3	ECON 201A Principles of Economics	3
PLS 195A or ENVS 195B	1	2 nd Language, 2 nd Semester	4
SEMESTER 2	14	SEMESTER 6	15
2 nd Language, 1 st Semester	4	Elective	3
CHEM 152 General Chemistry II	3	Elective	3
TIER I	3	PLS 360 Plant Growth & Physiology	3
ENVS 200/201 General Soils	4	TIER II	3
SEMESTER 3	16	ENVS 401	3
CHEM 241A Organic Chemistry	3	SEMESTER 7	14
PLS 240 Plant Biology	4	PLS 498 Senior Capstone	2
PLS 305 Plant Pathology	3	PHYS 102 Introductory Physics	3
ENGL 102 1 st Year Composition	3	Elective	3
TIER I	3	ENVS 431	3
SEMESTER 4	16	Elective	3
MATH 263 Intro Statistics/Biostatistics	3	SEMESTER 8	15
ENVS 316	3	ENVS 470	3
PLS 312 Animal and Plant Genetics	4	ENVS 408 (UD Communication)	3
Tier I	3	TIER II	3
		ENTO 468	3

Career Opportunities for Sustainable Plant Systems Majors

Biotech Industry-

- Greenhouse or field manager
- Research technician
- Biological supplies product developer

Education and Academia-

- Professor
- Extension agent or specialist
- Technical staff
 - lab manager
 - researcher
- School teacher or administrator
- Herbarium or living collections curator
- Greenhouse manager

Landscape Management-

- Landscape contractor
- Parks grounds supervisor
- Testing or consulting service contractor

Publishing-

- Science editor
- Science writer
- Technical writers

Professional Societies-

- Scientific society director, associate/administrator

Sales and Private Industry-

- Biotech or agricultural chemical and equipment sales representative
- Nursery owner or manager
- Plant pathologist
- Microbiologist
- Agricultural engineer
- Environmental scientist

Government-

- Research director or administrator
- National, state and local government state conservation and wildlife agent
- Agricultural inspector (USDA)

Science and Society/ Public Policy-

- Horticultural scientist
- Food Scientist
- Soil scientist
- Forester or urban forestry manager
- Arborist
- Soil and water conservationist
- Botanical garden director, scientist, educational program coordinator
- Government or industry policy advocate
 - Conservation & environmental policy
 - Agricultural policy
 - Science policy

Sample Job Titles

Salary Ranges

Sales Engineer/Technical Sales Manager	\$53,900 - \$89,300
Agricultural Consultant	\$52,482 - \$89,116
Green Marketer	\$42,700 - \$87,700
Golf Course Superintendent	\$71,275 - \$81,044
Agricultural Sciences Teachers, Postsecondary	\$43,500 - \$79,900
Botanist	\$40,100 - \$70,800
Nursery and Greenhouse Managers	\$32,000 - \$64,700
Plant Scientist	\$35,900 - \$58,900
Horticultural Scientist	\$35,900 - \$58,900
Buyers and Purchasing Agents, Farm Products	\$32,300 - \$55,900
Park Naturalist	\$20,000 - \$49,000
Farm Management Advisor	\$24,300 - \$45,400
First-line Supervisor of Horticultural Workers	\$24,300 - \$42,600
Agricultural Inspector	\$24,500 - \$41,400
Horticultural Therapist	\$25,600 - \$41,100

Sources of Information: United States Department of Labor: Bureau of Labor Statistics (2011); Facts on File: Ferguson's Career Guidance Center (2013); Golf Course Superintendents Association of America (2013). For more information about careers and assistance in making your career plans, contact Career Services: career@email.arizona.edu; www.career.arizona.edu.