

# **Bachelor of Science in Crop Production**

**-- Guidelines for Majors --**

A University of Arizona Major  
within the College of Agriculture and Life Sciences  
coordinated by the

**Department of Plant Sciences and the  
Department of Soil, Water and Environmental Science**

**2008 - 2009**

**Revised June 2008**  
Website: [www.ag.Arizona.edu/swes](http://www.ag.Arizona.edu/swes)

## **SCHOLARSHIPS**

(Amounts may vary from year to year)

### **Fuller, W.H.**

- Grad or undergrad in SWES with service to agriculture in Arizona
- Demonstrating academic excellence, good character, and professional promise
- Nominated by Soil, Water and Environmental Science, Department Head, with approval by OSFA

### **Buehrer, T.**

- Grad or undergrad in soil and water science or environmental science
- Demonstrating academic excellence AND leadership
- Named by Dean with approval by OSFA

### **Smith, H. Schol**

- Upper division undergrad in environmental, engineering or nutritional science
- Sub-committee nominates, Named by Dean with approval by OSFA

### **Ben Avery Award, Soil and Water Conservation Service (SWCS)**

- Undergrad in soil or water science-related field
- Must be an Arizona resident
- Junior or Senior the year Scholarship is awarded
- Minimum GPA of 2.5

### **Jones, Geo**

- Grad or undergrad (upper division) in Crop Production
- Financial need and at least 3.0 cumulative GPA
- Named by Dean with approval by OSFA

### **Alcorn, Stanley**

- Junior/Senior in CALS majoring in plant sciences, plant pathology, agronomy, entomology, soil, water/environmental sciences
- Financial need may be considered
- Candidates must demonstrate academic merit
- Selected by Schol. Committee of College of Ag or faculty of various academic depts. Campaign AZ

### **Stith, Lee S.**

- Junior/Senior in CALS majoring in plant sciences, plant pathology, entomology, soil, water/environmental sciences
- Financial need may be considered
- Candidates must demonstrate academic merit

### **Arizona Vegetable Growers Association**

- Students studying agronomy
- Must be an Arizona resident

### **Boswell, JG**

- Based on academic merit
- Crop Production/Agronomy majors only

## **B.S. Degree in Crop Production University of Arizona**

Agronomic science (agronomy) is defined as the combination of crop and soil sciences principles and practices. At the University of Arizona in the College of Agriculture and Life Sciences (CAL S), the Plant Sciences (PL S) and Soil, Water and Environmental Science (SWES) departments provide the base courses required for an undergraduate degree in crop production. Because of this, the UA Crop Production program is directed and managed by both the SWES and PLS departments.

This undergraduate program provides a solid foundation for students entering a career in modern agriculture and crop production. This degree program provides a good base for students interested in work associated with field crops, permanent tree crop production, turf science, and/or a broad array of horticultural crops that are grown throughout the western United States and other regions in the world. Due to the flexible nature of this program, students can elect to focus on either Agronomy or Turf Science. Fundamentals derived from this program can be applied to crop production systems and land management programs locally, regionally, or globally. Also, graduates from this program will be well prepared academically to enter graduate degree programs.

### **Descriptions of the Departments**

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#### **Plant Sciences and Plant Pathology/Microbiology:**

The PL S Department includes the Division of Plant Pathology and Microbiology. Both units foster research, instruction and outreach programs that study the way plants grow and how they interact with their environment. Plant Sciences has faculty performing basic research on plant anatomy, development, physiology, genetics and environmental responses. Cooperative Extension faculty work statewide to assist the agronomic and horticulture industries. Course work includes a wide variety of subjects important to understanding and improving plants for human use and enjoyment. Further information can be found at: <http://ag.arizona.edu/pls>

The Division of Plant Pathology & Microbiology maintains instruction programs and conducts research on the molecular, cellular, organismal and ecological aspects of plant diseases. This includes work in the areas of crop production, turf science, natural resources and food safety. Further information can be found at: <http://ag.arizona.edu/PLP/plphome.html>

#### **Soil, Water and Environmental Science:**

The SWES Department has 31 faculty members, including Cooperative Extension specialists working statewide to promote agricultural science, and researchers working at various Agricultural Research Centers. The department places an educational and research emphasis on soil/nutrient/water/plant dynamics, soil salinity, and crop production, as well as environmental and soil biology, chemistry, microbiology, physics, pollution, and technology. Further information can be found at: <http://ag.arizona.edu/swes>

## Overview of Major

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### A. General Education.

This coursework gives undergraduates a diverse academic background to complement each major. It is divided as follows:

#### 1. Foundation Courses:

English Composition	6 units
Mathematics (satisfied by MATH 124/125)	

#### 2. Pre-Major:

Communications (satisfied by SWES 408)

#### 3. Second Language

Second semester proficiency	variable
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#### 4. Tier 1

Traditions and Cultures	6 units
Individuals and Societies	6 units

#### 5. Tier 2

Humanities	3 units
Arts	3 units
Individuals and Societies	3 units

### B. Core Basic Science.

This coursework gives a solid foundation in science and math. The general principles and specific analytical techniques in these classes are directly applicable to crop production.

### C. Core Soil and Water Science.

These classes provide in-depth coverage of soil physical and chemical characteristics, and soil/water interactions. Students will learn how to maintain soil for optimum plant growth, and to diagnose and treat suboptimal soil conditions.

### D. Core Plant Science.

These classes present biological, chemical, and physical characteristics of plants and their interaction with the environment. Students will be able to identify plant requirements under different conditions.

### E. Focal Area.

This coursework enables students to specialize in Agronomy or Turf Science.

### F. Additional Courses.

Classes in this section provide miscellaneous supporting skills necessary for crop production, including irrigation design/maintenance, economics, and technical writing.

<b>COURSEWORK</b>	<b>SEMESTER</b>	<b>UNITS</b>
A) GENERAL EDUCATION	I, II	33
B) CORE BASIC SCIENCE		
<b>CHEM 151, 152 General Chemistry</b>	I, II	<b>8</b>
<b>CHEM 241a Organic Chemistry</b>	I, II	<b>3</b>
<b>MATH 124 or 125 Calculus I</b>	I, II	<b>3-5</b>
<b>MATH 263 Statistics</b>	I, II	<b>3</b>
<b>MCB 181R Introductory Biology</b>	I, II	<b>3</b>
<b>PHYS 102 Introductory Physics</b>	I, II	<b>3</b>
<b>TOTAL</b>		<b>23-25</b>
C) CORE SOIL AND WATER SCIENCE		
<b>SWES 200/201 Introduction to Soil Science</b>	I, II	<b>4</b>
<b>SWES 316 Soil Fertility and Plant Nutrition</b>	II	<b>3</b>
<b>SWES 401 Management of Arid Lands and Salt-Affected Soils</b>	II (alt. years)	<b>3</b>
<b>SWES 431 Soil Genesis, Morphology, and Classification</b>	I	<b>3</b>
<b>SWES 420 Environmental Physics OR SWES 470 Soil Physics</b>	I or II	<b>3</b>
<b>TOTAL</b>		<b>16</b>
D) CORE PLANT SCIENCE		
<b>PLS 240 Plant Biology</b>	I	<b>4</b>
<b>PLS 312 Plant Genetics</b>	II	<b>4</b>
<b>PLS 360 Principles of Plant Physiology</b>	I	<b>3</b>
<b>PLS 405 Weed Science</b>	I	<b>3</b>
<b>TOTAL</b>		<b>14</b>
E) FOCAL AREA (choose either Agronomy or Turf Science)		
<b>PLS 306 Crop Science &amp; Production (Agronomy Focus)</b>	I	<b>3</b>
<b>Electives (Agronomy Focus; to include at least 5 upper division units)</b>		<b>9-10</b>
<b>PLS 270 Golf &amp; Sport Turf Management (Turf Science Focus)</b>	II (odd years)	<b>3</b>
<b>PLS 355 Turfgrass Management (Turf Science Focus)</b>	I	<b>3</b>
<b>PLS 455 Turfgrass Science: Env. Stress (Turf Science Focus)</b>	I	<b>3</b>
<b>AGTM 330 Turf and Landscape Technology (Turf Science Focus)</b>	II (even years)	<b>3</b>
<b>TOTAL</b>		<b>12-13</b>
F) ADDITIONAL COURSES		
<b>ASM 404 Irrigation Principles and Management</b>	I, II	<b>3</b>
<b>ECON 201a Principles of Economics</b>	I, II	<b>3</b>
<b>AREC 217 Resources &amp; Environmental Economics (or AGTM 213)</b>	I	<b>3</b>
<b>SWES 408 Scientific Writing for Env., Ag. &amp; Life Sciences</b>	II	<b>3</b>
<b>ENTO 468 Insect Pest Management</b>	II	<b>3</b>
<b>PLP 305 Introductory Plant Pathology</b>	I	<b>3</b>
<b>TOTAL</b>		<b>18</b>
<b>TOTAL</b>		<b>120</b>

## Crop Production Minor

Students may select a Minor in Crop Production while having a different Major. Twenty two units are required, even if the major department guidelines differ. Nine units must be unique to this minor.

COURSEWORK	SEMESTER	UNITS
A) GENERAL SCIENCE COURSES		
<b>UNVR 195A Careers in Crop Production</b>	I	<b>1</b>
<b>CHEM 151 General Chemistry</b>	I, II	<b>4</b>
<b>SWES 200/201 Introduction to Soil Science</b>	I, II	<b>4</b>
<b>PLS 240 Plant Biology</b>	I	<b>4</b>
TOTAL:		13
B) UPPER DIVISION COURSES (SELECT 9 UNITS)		
<b>Students select relevant upper-division courses in consultation with an Advisor (ASM, PLP, PLS, RNR, and SWES courses)</b>		
TOTAL:		9
TOTAL:		22

## Resources for the Crop Production Major and Minor

### Advising.

Advisors provide guidance for selecting and scheduling coursework for students throughout their academic program, and help students procure internships and jobs at graduation. Students are highly recommended to maintain contact with their advisors at least once a semester. They are there to help!

#### Plant Sciences Advisor:

Elizabeth Davison  
Lecturer & Undergraduate Coordinator,  
Director, UA Campus Arboretum  
Forbes Building, Rm 317  
(520) 621-1582  
edavison@ag.arizona.edu

#### Soil, Water and Environmental Science Advisor:

Thomas B. Wilson, Ph.D.  
Lecturer  
Family and Consumer Sciences  
Building, Rm 308  
520-621-9308  
twilson@ag.arizona.edu

### Class Locations.

Coursework takes place on the campus of the University of Arizona, at the Campus Agricultural Center (<http://cals.arizona.edu/general/departments/cac.html>), and at other locations in Arizona.

### Clubs.

Undergraduate clubs provide support and activities for students outside of the classroom. Club activities allow students to gain supplemental experience relevant to their major in an informal, friendly environment. For more information, visit the SWES Club website at: <http://www.ag.arizona.edu/clubs/swesclub/>

## Crop Production Major's Schedule Planning Worksheet

FIRST SEMESTER (Fall)				SECOND SEMESTER (Spring)			
Recommended		Your Schedule		Recommended		Your Schedule	
Tier I course	3			Tier I course	3		
ENGLISH	3			ENGLISH	3		
MATH	3			CHEM 152	4		
CHEM 151	4			SWES 200	3		
ECON 201a	3			SWES 201	1		
<b>TOTAL</b>	<b>16</b>	<b>TOTAL</b>		<b>TOTAL</b>	<b>14</b>	<b>TOTAL</b>	

THIRD SEMESTER (Fall)				FOURTH SEMESTER (Spring)			
Recommended		Your Schedule		Recommended		Your Schedule	
Tier I course	3			Tier I course	3		
MCB 181 R	3			Focal Area or Elective	3		
PLS 240	4			PHYS 102	3		
MATH 124	5			CHEM 241a	3		
1 <sup>st</sup> Yr. Colloq.	1			MATH 263	3		
<b>TOTAL</b>	<b>16</b>	<b>TOTAL</b>		<b>TOTAL</b>	<b>16</b>	<b>TOTAL</b>	

FIFTH SEMESTER (Fall)				SIXTH SEMESTER (Spring)			
Recommended		Your Schedule		Recommended		Your Schedule	
Tier II course	3			Tier II Course	3		
•Focal Area or Elective	3			•PLS 312	4		
•PLS 405	3			• PLP 305	3		
•SWES 431	3			AGTM 213*	3		
• Focal Area or Elective	3			•ENGL 308 or SWES 408	3		
TOTAL	15	TOTAL		TOTAL	16	TOTAL	

\*Alternatively AREC 217 during the fall.

SEVENTH SEMESTER (Fall)				EIGHTH SEMESTER (Spring)			
Recommended		Your Schedule		Recommended		Your Schedule	
Tier II course	3			• SWES 316	3		
•PLS 360	3			• SWES 401	3		
•ASM 404	3			• SWES 470	3		
• Focal Area or Elective	3			• ENTO 468	3		
TOTAL	12	TOTAL		TOTAL	12	TOTAL	

•Denotes Upper-division Units