

Bachelor of Science in Sustainable Agriculture Curriculum within the Individualized Program Major

Sustainable Agriculture integrates environmental stewardship, economic profitability, and social responsibility. This holistic treatment involves minimization of inputs to provide plant nutrients and control pests, integration of animal and plant production systems, linkage of the consumer to the producer, and attention to the social interactions of rural, suburban, and urban communities with agriculture.

It is vital for today's agricultural professionals to understand the emerging consumer demand for healthy and sustainably-produced food and that production of this food takes place in the context of environmental stewardship and local communities. The Sustainable Agriculture program provides a firm foundation in agricultural, natural and social sciences that enables students to evaluate and improve the environmental, economic, and community-level impacts related to food production and farming. Graduates of the Sustainable Agriculture program will be prepared to enter commercial farming or a supportive profession and contribute to the development of regionally-based food systems. Students completing the Sustainable Agriculture program will also be well prepared to continue their training towards advanced degrees in graduate or professional schools.

Career Opportunities

Sustainable Agriculture is increasingly recognized as an integrated management system that combines economic, environmental, and social principles and practices. The market for high quality agricultural products from farms that conserve natural resources and contribute to the quality of life in the community is growing rapidly. Continued growth of this market will support a substantial increase in employment opportunities for trained individuals who can practice sustainable agriculture or work in a related professional capacity. Employment opportunities include commercial agricultural production, soil, water and natural resource management, cooperative extension, community food system organizing, and research. Students will also be prepared to enter graduate programs in a broad range of agricultural disciplines.

Administration of Program

The Sustainable Agriculture program is administered by a Director of Undergraduate Studies from the faculty of the College of Agriculture. First year and transfer students are required to meet with the Director during their first semester. The Director will initially advise you with regards to course enrollment, career planning, part-time job opportunities, and appoint another faculty member as your permanent advisor within your first year. Further administration of the program will be on an individual basis with a faculty advisor. All students in the Sustainable Agriculture program are expected to develop a preliminary curriculum plan with the help of their adviser and to file that plan with the Director of Undergraduate Studies by October 1 of their second year. An updated version of the curriculum plan should be submitted again on or before October 1 of their third year.

Graduation Requirements

To earn a Bachelor of Science degree in Sustainable Agriculture, a student must complete 122 semester hours with at least 45 hours from courses at the 300 level or above. A 2.0 grade point standing (on a 4.0 scale) is necessary and remedial courses cannot be counted toward the total hours required for a degree.

The University requires demonstrated competency in writing, and the University Writing Requirement consists of (1) the First Year Writing Requirement and (2) the Graduation Writing Requirement. The University Bulletin should be consulted for details regarding the First Year Writing Requirement. The Graduation Writing Requirement within the Sustainable Agriculture program is satisfied through successful completion of SAG 201.

In addition to the university and college requirements, a student must satisfy pre-major, major, core, and specialty support requirements.

University Studies Program (USP) Requirements

Courses specifically listed in the University Studies outline also satisfy college, pre-major, major, or specialty support requirements.

I. Mathematics

Completed by one of the following

1. A score ≥ 26 on mathematics section of ACT *or*
2. A bypass examination *or*
3. MA 109 College Algebra *or*
4. Any calculus course (satisfies section III requirement)

II. Foreign Language

Completed by one of the following:

1. Two years of the same foreign language in high school *or*
2. Six hours from an approved USP sequence

III. Inference and Communicative Skills (3 hours)

MA 123 Elementary Calculus and its Applications

IV. Written Communication (4 hours)

Completed by one of the following:

1. ENG 104 Writing: An Accelerated Foundational Course *or*
2. Score of 32 or above on the English component of the ACT; score of 700 or above on SAT I Verbal; or score of 4 or 5 on the AP English Language Exam.

V. Oral Communication

This requirement is suspended.

VI. Natural Sciences (6 hours)

1. CHE 105 – General College Chemistry I
2. CHE 107 – General College Chemistry II

VII. Social Sciences (6 hours)

1. ACE 102 – The Dynamics of Rural Social Life *or*
SOC 101 – Introductory Sociology
2. ECO 201 – Principles of Economics I

VIII. Humanities (6 hours)

Six hours from an approved sequence.

IX. Cross-Cultural Requirement (3 hours)

Three hours from the approved list.

X. USP Electives (6 hours)

1. BIO 150 – Principles of Biology I
2. BIO 152 – Principles of Biology II

SUB-TOTAL: USP HOURS 34

College Requirements

General Requirements (3 hours)

Gen 100 – Issues in Agriculture: The Development of Modern Agriculture

SUB-TOTAL: COLLEGE HOURS 3

Pre-Major Requirements

Courses marked with an asterisk (*) may also be used to satisfy University Studies requirements.

Math

*MA 123 Elementary Calculus and its Applications 3

Biology

*BIO 150 Principles of Biology I 3

*BIO 152 Principles of Biology II 3

Chemistry

*CHE 105 General College Chemistry I 3

*CHE 107 General College Chemistry II 3

Economics

*ECO 201 Principles of Economics I 3

Nutrition and Food Sciences

NFS 212 Introductory Nutrition 3

Social Sciences

*CLD 102 The Dynamics of Rural Social Life *or* 3

*SOC 101 Introductory Sociology 3

Chemistry Laboratory

CHE 111 General Chemistry Laboratory I *and* 1

CHE 111 General Chemistry Laboratory II 2

SUB-TOTAL: PRE-MAJOR HOURS 6

Major Requirements

Environmental Stewardship Cluster

ASC 382 Principles of Livestock Nutrition	3
ENT 300 General Entomology	3
PLS 366 Fundamentals of Soil Science	4
PLS 404 Integrated Weed Management	4
PPA 400G Principles of Plant Pathology	3

Economic Profitability Cluster

AEC 302 Agricultural Management Principles	4
AEC 305 Food and Agriculture Marketing Principles	3
AEC 445G Introduction to Resource and Environmental Economics	3

Social Responsibility Cluster

GEN 501 Agriculture and Environmental Ethics	3
SOC 360 Environmental Sociology	3
SOC 420 Community Analysis <i>or</i>	3
SOC 517 Rural Sociology	3

SUB-TOTAL: MAJOR HOURS 36

Sustainable Agriculture Core Courses

SAG 101 Introduction to Sustainable Agriculture	3
SAG 201 Cultural Perspectives on Sustainability	3
SAG 386/PLS 386 Plant Production Systems	4
SAG 397 Apprenticeship in Sustainable Agriculture	3
SAG 490 Integration of Sustainable Agriculture Principles	3

SUB-TOTAL: CORE HOURS 16

Specialty Support

Students must complete 18 credit hours in support courses. All such courses must be at or above 200-level. BIO 325 is a *required* support course. Any combination of additional specialty support courses may be selected based on the student's area of interest with approval of the academic advisor. Those listed below are recommendations and may have prerequisites.

Required Specialty Support

BIO 325 Introduction to Ecology 4

Economic Profitability Cluster

FAM 250 Consumer Issues 3

FOR 325 Economic Botany 3

AEC 201 Introduction to Farm and Natural Resource Finance 3

AEC 309 International Agriculture, World Food Needs... 3

AEC 545 Resource and Environmental Economics 3

NRC 380 Analysis of Natural Resource Systems 3

Environmental Stewardship Cluster

BIO 308 Microbiology 3

BIO 560 Environmental Physiology and Toxicology 3

ENT 310 Insect Pests of Field Crops 3

ENT 402 Forest Entomology 3

FOR 205 Forest and Wildland Soils and Landscapes 3

FOR 315 Conservation Biology 3

GEO 251 Weather and Climate 3

GEO 310 Quantitative Techniques in Geography 3

GEO 351 Physical Landscapes 3

GEO 550 Sustainable Resource Development & Management 3

NFS 241 Food Service Sanitation 3

PLS 450G Biogeochemistry 3

PLS 510 Forage Utilization and Management 3

PLS 465 Greenhouses and Controlled Environments 3

PLS 470G Soil Nutrient Management 3

PLS 477G Land Treatment of Waste 3

Social Responsibility Cluster

ACE 501 Cooperative Extension 3

AEC 321 Agricultural Law 3

AEC 424 Principles of Environmental Law 3

AEC 532 Agricultural and Food Policy 3

ANT 375 Ecology and Social Practice 3

GEO 321 Land, People and Development in Appalachia 3

PHI 330 Professional Ethics 3

PHI 560 Philosophy and the Scientific Method 3

SOC 380 Globalization 3

EXP 396 Experiential Education 3-6

SUB-TOTAL: SPECIALTY SUPPORT HOURS 18

Electives

Students must take a minimum of 9 credit hours of elective courses to graduate.

SUB-TOTAL: ELECTIVE HOURS minimum of 9

TOTAL HOURS: 122

SUSTAINABLE AGRICULTURE UNDERGRADUATE CURRICULUM

Administered within Individualized Programs Major, College of Agriculture

DEPT.	COURSE	DESCRIPTION	CREDITS
UNIVERSITY STUDIES REQUIREMENTS			
I.	MATH: MA 123	(satisfies Pre-Major requirement)	3
II.	FOREIGN LANGUAGE: Two (2) years of high school or six (6) hours of college level		-
III.	INFERENCE-LOGIC: MA 123 (satisfies Pre-Major requirement; also see USP I)		-
IV.	UNIVERSITY WRITING: ENG 104; and Graduation Writing Requirement (met by SAG 201 and SAG 490)		4
V.	ORAL COMMUNICATION: Requirement is currently suspended		-
VI.	NATURAL SCIENCES: CHE 105 and CHE 107 (satisfies Pre-Major requirement)		6
VII.	SOCIAL SCIENCES: CLD 102 or SOC 101; and ECO 201 (satisfies Pre-Major requirement)		6
VIII.	HUMANITIES: Six hours from approved list		6
IX.	CROSS-CULTURAL: Three hours from approved list		3
X.	ELECTIVES: BIO 150 and BIO 152 (satisfies Pre-Major requirement)		6
SUB-TOTAL			34
COLLEGE OF AGRICULTURE REQUIREMENT			
GEN	100	Issues in Agriculture	3
SUB-TOTAL			3
PRE-MAJOR REQUIREMENTS			
These are MA 123; and CHE 105 and CHE 107; and BIO 150 and BIO 152; and ECO 201; and CLD 102 or SOC 101; and the following courses:			
CHE	111	General Chemistry Laboratory I	1
CHE	113	General Chemistry Laboratory II	2
NFS	212	Introductory Nutrition	3
SUB-TOTAL			6
MAJOR REQUIREMENTS			
<i>Environmental Stewardship Cluster</i>			
ASC	382	Principles of Livestock Production	3
ENT	300	General Entomology	3
PLS	366	Fundamentals of Soil Science	4
PLS	404	Integrated Weed Management	4
PPA	400G	Principles of Plant Pathology	3
<i>Economic Profitability Cluster</i>			
AEC	302	Agricultural Management Principles	4
AEC	305	Food and Agricultural Marketing Principles	3
AEC	445G	Introduction to Resource and Environmental Economics	3
<i>Social Responsibility Cluster</i>			
GEN	501	Agricultural and Environmental Ethics	3
SOC	360	Environmental Sociology	3
SOC or SOC	420 517	Community Analysis Rural Sociology	3
SUB-TOTAL			36
SUSTAINABLE AGRICULTURE CORE			
SAG	101	Introduction to Sustainable Agriculture	3
SAG	201	Cultural Perspectives on Sustainability	3
SAG	386	Plant Production Systems	4
SAG	397	Apprenticeship in Sustainable Agriculture	3
SAG	490	Integration of Sustainable Agriculture Principles	3
SUB-TOTAL			16
SPECIALTY SUPPORT			
BIO	325	Introduction to Ecology	4
Courses chosen in consultation with academic advisor			14
SUB-TOTAL			18
FREE ELECTIVES			
As needed to achieve at least 122 credit hours			SUB-TOTAL
SUB-TOTAL			9
TOTAL CREDITS FOR B.S. DEGREE			122

Suggested Schedule
Sustainable Agriculture Curriculum
Administered within Individualized Programs Major, College of Agriculture

FALL SEMESTER			SPRING SEMESTER		
<i>Year 1</i>			<i>Year 1</i>		
Course	Description	Cr	Course	Description	Cr
SAG 101	Principles of Sustainable Agriculture	3	CHE 105^a	General College Chemistry I	3
ENG 104^a	Writing: An Accelerated Foundation	4	CHE 111	General Chemistry I Laboratory	1
MA 123^a	Elementary Calculus	3	GEN 100	Issues in Agriculture	3
CLD 102^{a, b}	Dynamics of Rural Social Life	3	---	USP VIII: Humanities	3
---	USP VIII: Humanities	3	---	Free Elective	3
Subtotal		16	Subtotal		13
<i>Year 2</i>			<i>Year 2</i>		
CHE 107^a	General College Chemistry II	3	SAG 201^c	Cultural Perspectives on Sustainability	3
CHE 113	General Chemistry II Laboratory	2	BIO 150^a	Principles of Biology I	3
BIO 152^a	Principles of Biology II	3	---	Free Elective	3
NFS 212	Introductory Nutrition	3	ECO 201^a	Principles of Economics I	3
---	USP IX: Cross Cultural	3	PLS 366	Fundamentals of Soil Science	4
Subtotal		14	Subtotal		16
<i>Year 3</i>			<i>Year 3</i>		
SAG 386	Plant Production Systems	4	AEC 445G	Intro. To Resource and Environ. Econ.	3
AEC 302	Agricultural Management Principles	4	SOC 360	Environmental Sociology	3
ENT 300	General Entomology	3	PLS 404	Integrated Weed Management	4
ASC 382	Principles of Livestock Production	3	---	Specialty Support Elective	3
			---	Specialty Support Elective	2
Subtotal		14	Subtotal		15
<i>Year 4</i>			<i>Summer (between Years 3 and 4)</i>		
AEC 305	Food and Ag. Marketing Principles	3	SAG 397	Apprenticeship in Sustainable Agric	3
SOC 420	Community Analysis	3	Subtotal		3
PPA 400G	Principles of Plant Pathology	3	<i>Year 4</i>		
---	Specialty Support Elective	3	SAG 490	Integration of Sustain. Agric. Principles	3
---	Specialty Support Elective	3	GEN 501	Agricultural and Environmental Ethics	3
Subtotal		15	BIO 325	Introductory Ecology	4
			---	Specialty Support Elective	3
			---	Free Elective	3

Subtotal		16	Subtotal		16

TOTAL CREDIT HOURS 122

^a Fulfills a USP requirement.

^b SOC 101 can be substituted for CLD 102.

^c To be used in fulfillment of the Graduation Writing Requirement.