



Sustainable Agriculture Credential: Associate in Applied Science in Sustainable Agriculture A1541000

The Sustainable Agriculture curriculum is designed to provide the entrepreneurial and technical skills necessary to manage a profitable, environmentally sound, community based small farm or agricultural business. Students learn the fundamentals of sustainable agriculture, focusing on crop production and farm business. Emphasis is placed on entrepreneurial and practical field training. Students will complete a business plan and an agricultural internship in marketing and farming. Graduates are qualified for employment in a variety of positions associated with sustainable agriculture, including horticultural and livestock operations, wholesale and retail management, nursery operations, and environmental and agricultural education.

Program Length: 5 semesters

Career Pathway Options: Associate in Applied Science in Sustainable Agriculture

Program sites: Pittsboro Campus - Day Program

Course Requirements for Sustainable Agriculture Degree

A. General Education Courses (16 SHC)		C-L-SHC
ENG 111	Expository Writing	3-0-3
ENG 111A	Expository Writing Lab	0-2-1
ENG 114	Professional Research and Reporting	3-0-3
MAT 140	Survey of Mathematics	3-0-3
	Humanities Elective	3-0-3
	Social Science Elective	3-0-3
B. Required Major Core Courses (19 SHC)		
AGR 111	Basic Farm Maintenance	1-3-2
AGR 121	Biological Pest Management	3-0-3
AGR 139	Introduction to Sustainable Agriculture	3-0-3
AGR 160	Plant Science	2-2-3
AGR 170	Soil Science	2-2-3
BUS 280	REAL Small Business	4-0-4
COE 111	Co-op Work Experience I	0-10-1
C. Other Major Hours Required (35 SHC)		
AGR 212	Farm Business Management	3-0-3
AGR 214	Agricultural Marketing	3-0-3
AGR 220	Agriculture Mechanization	2-2-3
AGR 221	Farm Structures	2-2-3
	Or	
HOR 130	Greenhouse Design	3-0-3
HOR 168	Plant Propagation	2-2-3
AGR 265	Organic Crop Production: Spring	2-2-3
AGR 266	Organic Crop Production: Fall	2-2-3
AGR 293	Selected Topics in Sustainable Agriculture	3-0-3
ANS 110	Animal Science	3-0-3
ANS 111	Sustainable Livestock Management	2-2-3
CIS 111	Basic PC Literacy	1-2-2
HOR 130	Greenhouse Design	3-0-3

HOR 168 Plant Propagation 2-2-3

Total Semester Hours Credit Required for Graduation: 70

Semester Curriculum for Sustainable Agriculture Associate Degree

1st Semester (Fall)

AGR 111	Basic Farm Maintenance	1-3-2
AGR 139	Introduction to Sustainable Agriculture	3-0-3
AGR 170	Soil Science	2-2-3
ANS 110	Animal Science	3-0-3
CIS 111	Basic PC Literacy	1-2-2
*PSY 150	General Psychology	<u>3-0-3</u>
		13-7-16

* May substitute another approved Social/Behavioral Science Elective

2nd Semester (Spring)

AGR 121	Biological Pest Management	3-0-3
AGR 160	Plant Science	2-2-3
ANS 111	Sustainable Livestock Management	2-2-3
ENG 111	Expository Writing	3-0-3
ENG 111A	Expository Writing Lab	0-2-1
	Humanities Elective	<u>3-0-3</u>
		13-6-16

3rd Semester (Summer)

COE 111	Co-op Work Experience I	0-10-1
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4th Semester (Fall)

AGR 214	Agricultural Marketing	3-0-3
AGR 220	Agriculture Mechanization	2-2-3
AGR 266	Organic Crop Production: Fall	2-2-3
AGR 221	Farm Structures	2-2-3
	Or	
HOR 130	Greenhouse Design	3-0-3
ENG 114	Professional Research and Reporting	3-0-3
HOR 168	Plant Propagation	<u>2-2-3</u>
		15/16-6/8-18

5th Semester (Spring)

AGR 212	Farm Business Management	3-0-3
AGR 265	Organic Crop Production: Spring	2-2-3
AGR 293	Special Topics in Sustainable Agriculture	3-0-3
BUS 280	REAL Small Business	4-0-4
MAT 140	Survey of Mathematics	<u>3-0-3</u>
		14-4-16

Total Semester Hours Credit: 67

COURSE DESCRIPTIONS

AGR 111 Basic Farm Maintenance 1-3-2

This course covers fundamentals of maintenance and repair of farm facilities and equipment. Topics include safe use of hand tools and farm machinery, carpentry, concrete, painting, wiring, welding, plumbing, and calculating costs and materials needed. Upon completion, students should be able to answer theoretical questions on topics covered and assist with maintenance and repair of farm facilities and equipment.

AGR 121 Biological Pest Management 3-0-3

This course will emphasize the building and maintaining of healthy soil, plant and insect biological cycles as the key to pest and disease management. Course content includes study of major pests and diseases, including structure, life cycle, and favored hosts; and biological and least toxic methods of chemical control. Upon completion, students should be able to identify and recommend methods of prevention and control of selected insects and diseases.

AGR 139 Introduction to Sustainable Ag 3-0-3

This course will provide students with a clear perspective on the principles, history and practices of sustainable agriculture in our local and global communities. Students will be introduced to the economic, environmental and social impacts of agriculture. Upon completion, students should be able to identify the principles of sustainable agriculture as they relate to basic production practices.

AGR 160 Plant Science 2-2-3

This course introduces the basic principles of botany that pertain to agricultural production. Emphasis is placed on the anatomy and physiology of flowering plants. Upon completion, students should be able to identify and explain plant systems.

AGR 170 Soil Science 2-2-3

This course covers the basic principles of soil fertilizing. Topics include liming, fertilization, management, and plant nutrients. Upon completion, students should be able to give nutrient and liming recommendations for soils.

AGR 212 Farm Business Management 3-0-3

This course introduces budgeting, farm analysis, production costs, business organizations, and general management principles. Topics include enterprise budgets, partial budgets, whole farm budgets, income analysis, and business organizations. Upon completion, students should be able to prepare and analyze a farm budget.

AGR 214 Agricultural Marketing 3-0-3

This course covers basic marketing principles for agricultural products. Topics include buying, selling, processing, standardizing, grading, storing, and marketing of agricultural commodities. Upon completion, students should be able to construct a marketing plan for an agricultural product.

AGR 220 Ag Mechanization 2-2-3

This course is a study of farm machinery and agricultural equipment. Topics include selection and operation of tractors, materials handling equipment, tillage and harvesting equipment, and irrigation systems. Upon completion, students should be able to identify equipment parts and explain the basic principles of machinery operation and management.

AGR 221 Farm Structures 2-2-3

This course covers basic agricultural buildings and structures. Topics include building materials, cost estimating, basic blueprint reading, and job planning. Upon completion, students should be able to complete a cost estimate for constructing an agricultural structure.

AGR 265 Organic Crop Production: Spring 2-2-3

This course includes a study of spring organic crop production practices, including vegetables, cut flowers, and culinary and medicinal herbs. Topics include variety selection, production methods, and record keeping procedures for certification. Upon completion, students should be able to demonstrate a knowledge of organic crop production appropriate for the spring season.

AGR 266 Organic Crop Production: Fall 2-2-3

The course includes a study of spring organic crop production practices, including vegetables, cut flowers, and culinary and medicinal herbs. Topics include variety selection, production methods, and record keeping procedures for certification. Upon completion, students should be able to demonstrate a knowledge of organic crop production appropriate for the fall season.

AGR 293 Selected Topics in Sustainable Agriculture 3-0-3

This course provides an opportunity to explore areas of current interest in Sustainable Agriculture. This course provides an opportunity to explore areas of current interest in Sustainable Agriculture. Emphasis is placed on subject matter appropriate to this discipline. Upon completion, students should be able to demonstrate an understanding of the specific area of study.

ANS 110 Animal Science 3-0-3

This course introduces the livestock industry. Topics include nutrition, reproduction, production practices, diseases, meat processing, and marketing. Upon completion, students should be able to demonstrate a basic understanding of livestock production practices and the economic impact of livestock in North Carolina.

ANS 111 Sustainable Livestock Management 2-2-3

This course covers the integration of livestock as part of a sustainable farming system with emphasis on small-scale production for niche markets and pasture. Topics included are appropriate breed selection, nutrition and living requirements for livestock such as goats, hogs, sheep, poultry, and bees. Upon completion, student should recognize appropriate breeds for their farm needs and demonstrate knowledge of small-scale livestock production.

BUS 280 REAL Small Business 4-0-4

This course introduces hands-on techniques and procedures for planning and opening a small business, including the personal qualities needed for entrepreneurship. Emphasis is placed on market research, finance, time management, and day-to-day activities of owning/operating a small business. Upon completion, students should be able to write and implement a viable business plan and seek funding.

CIS 111 Basic PC Literacy 1-2-2

This course provides an overview of computer concepts. Emphasis is placed on the use of personal computers and software applications for personal and fundamental workplace use. Upon completion, students should be able to demonstrate basic personal computer skills.

COE 111 Co-op Work Experience I 0-10-1

Prerequisite: Approval of Instructor or Department Chairperson
This course provides work experience with a college-approved employer in an area related to the student's program of study. Emphasis is placed on integrating classroom learning with related work experience. Upon completion, students should be able to evaluate career selection, demonstrate employability skills, and satisfactorily perform work-related competencies.

ENG 111 Expository Writing 3-0-3

Prerequisites: RED 090 and ENG 090 or appropriate placement test scores

Corequisites: ENG 111A

This course is the required first course in a series of two designed to develop the ability to produce clear expository prose. Emphasis is placed on the writing process including audience analysis, topic selection, thesis support and development, editing, and revision. Upon completion, students should be able to produce unified, coherent, well-developed essays using standard written English. *This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in English composition.*

ENG 111A Expository Writing Lab 0-2-1

Prerequisites: RED 090 and ENG 090 or appropriate placement test scores

Corequisites: ENG 111

This writing laboratory is designed to apply the skills introduced in ENG 111. Emphasis is placed on the editing and revision components of the writing process. Upon completion, students should be able to apply those skills in the production of final drafts in ENG 111. The computer is used as a writing and design tool for this course.

ENG 114 Prof. Research and Reporting 3-0-3

Prerequisites: ENG 111

This course, the second in a series of two, is designed to teach professional communication skills. Emphasis is placed on research, listening, critical reading and thinking, analysis, interpretation, and design used in oral and written presentations. Upon completion, students should be able to work individually and collaboratively to produce well-designed business and professional written and oral presentations. The computer is used as a writing and design tool for this course. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in English composition.

HOR 130 Greenhouse Design 3-0-3

This course covers greenhouse facilities planning and equipment selection. Topics include types of greenhouses, location factors, materials, glazing selection, calculation of heating/cooling requirements, lighting, benches, and energy conservation. Upon completion, students should be able to demonstrate knowledge of material selection, facilities planning, equipment need selection, and appropriate calculations.

HOR 168 Plant Propagation 2-2-3

This course is a study of sexual and asexual reproduction of plants. Emphasis is placed on seed propagation, grafting, stem and root propagation, micro-propagation, and other propagation techniques. Upon completion, students should be able to successfully propagate ornamental plants.

MAT 140 Survey of Mathematics 3-0-3

Prerequisites: MAT 070, MAT 080, MAT 120, MAT 121, MAT 161, MAT 171, or MAT 175 or appropriate placement test scores

This course provides an introduction in a non-technical setting to selected topics in mathematics. Topics may include, but are not limited to, sets, logic, probability, statistics, matrices, mathematical systems, geometry, topology, mathematics of finance, and modeling. Upon completion, students should be able to understand a variety of mathematical applications, think logically, and be able to work collaboratively and independently. This course has been approved to satisfy the Comprehensive Articulation Agreement general education core requirement in natural sciences/mathematics.