# Curriculum Standard for Agribusiness: Agricultural Science Technology

**Career Cluster:** Agriculture, Food, and Natural Resources **

**Cluster Description:** The production, processing, marketing, distribution, financing, and development of agricultural commodities and resources including food, fuel, fiber, wood products, natural resources, horticulture, and other plant and animal products/resources.

**Pathway:** Agribusiness Systems | **Effective Term:** Fall 2017 (2017*03)

## Program Majors Under Pathway

| Program Major / Classification of Instruction Programs (CIP) Code | | Credential Level(s) Offered | Program Major Code |
|---|---|---|---|
| Agribusiness Technology | CIP Code 01.0102 | AAS/Diploma/Certificate | A15100 |
| Agriculture Education | CIP Code: 13.1301 | AAS/Diploma/Certificate | A15330 |
| Sustainable Agriculture | CIP Code: 01.0308 | AAS/Diploma/Certificate | A15410 |

## Pathway Description:

These curriculum are designed to provide the entrepreneurial and technical skills necessary to manage a profitable, environmentally sound, community based small farm or agricultural business. The objective is the development of a workforce knowledgeable in sustainable agriculture practices.

Students will learn the fundamentals of agriculture, focusing on crop production and business. Emphasis is placed on entrepreneurial and field training. Students will also learn the basic principles of our economic system and government policies and programs relating to agriculture.

Graduates should qualify for a variety of jobs in agricultural businesses such as equipment, feed, and agricultural supply sales; store management; farm operations; wholesale and retail produce management; nursery operations; and environmental and agricultural education.

*Program Major Description: Choose one of the following* ***4th paragraphs*** *to use in conjunction with the first three paragraphs of the pathway description above for documentation used to identify each* ***Program Major:***

**Agribusiness Technology:** A program that prepares individuals to manage agricultural businesses and agriculturally related operations within diversified corporations. Potential course work includes instruction in agriculture, agricultural specialization, business management, accounting, finance, marketing, planning, human resources management, and other managerial responsibilities.

**Agriculture Education:** A program that is designed to provide students with agriculture and education foundation courses. Course work focuses on the foundational aspects of agriculture and education theory. Students will be introduced to classroom theory and management as well as soil, plant, and animal science. This curriculum will provide students with the knowledge and skills to be eligible to become extension agents, farm management specialists, 4-H specialists, crop service representatives, agri-tourism tour guides or work in agriculture sales, or environmental community education programs. Successful completion of the program will provide students with an opportunity to articulate their coursework to university programs in Agriculture Education.

**Sustainable Agriculture:** A program that focuses on agricultural principles and practices that, over the long term, enhance environmental quality, make efficient use of nonrenewable resources, integrate natural biological cycles and controls, and are economically viable and socially responsible; and that may prepare individuals to apply this knowledge to the solution of agricultural and environmental problems. Potential course work includes instruction in principles of agroecology, crop and soil sciences, entomology, horticulture, animal science, weed science and management, soil fertility and nutrient cycling, applied ecology, agricultural economics, and rangeland ecology and watershed management.

**Within the degree program, the institution shall include opportunities for the achievement of competence in reading, writing, oral communication, fundamental mathematical skills, and basic use of computers.*

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**I. General Education Academic Core**

[*Curriculum Requirements for associate degree, diploma, and certificate programs in accordance with 1D SBCCC 400.97(3)]*: *Degree programs must contain a minimum of 15 semester hours including at least one course from each of the following areas: humanities/fine arts, social/behavioral sciences, and natural sciences/mathematics. Degree programs must contain a minimum of 6 semester hours of communications. Diploma programs must contain a minimum of 6 semester hours of general education; 3 semester hours must be in communications. General education is optional in certificate programs.*

## Agribusiness Systems: Agricultural Science Technology

| Recommended General Education Academic Core | | | AAS | Diploma | Certificate |
|---|---|---|---|---|---|
| **Minimum General Education Hours Required:** | | | **15 SHC** | **6 SHC** | **0 SHC** |
| *Courses listed below are recommended general education courses for this curriculum standard. Colleges may choose to include additional or alternative general education courses to meet local curriculum needs.* **Recommended certificate and diploma level curriculum courses. These courses may not be included in associate degree programs.* | | | | | |
| **Communication:** | | | | | |
| *COM 101 | Workplace Communication | 3 SHC | | | |
| COM 110 | Introduction to Communication | 3 SHC | **6 SHC** | **3-6 SHC** | **Optional** |
| COM 120 | Intro Interpersonal Com | 3 SHC | | | |
| COM 231 | Public Speaking | 3 SHC | | | |
| *ENG 101 | Applied Communications I | 3 SHC | | | |
| *ENG 102 | Applied Communications II | 3 SHC | | | |
| ENG 110 | Freshman Composition | 3 SHC | | | |
| ENG 111 | Expository Writing | 3 SHC | | | |
| ENG 112 | Argument-Based Research | 3 SHC | | | |
| ENG 114 | Prof Research & Reporting | 3 SHC | | | |
| ENG 115 | Oral Communication | 3 SHC | | | |
| ENG 116 | Technical Report Writing | 3 SHC | | | |
| **Humanities/Fine Arts:** | | | | | |
| *HUM 101 | Values in the Workplace | 2 SHC | | | |
| HUM 110 | Technology and Society | 3 SHC | | | |
| HUM 115 | Critical Thinking | 3 SHC | **3 SHC** | **0-3 SHC** | **Optional** |
| HUM 230 | Leadership Development | 3 SHC | | | |
| PHI 230 | Introduction to Logic | 3 SHC | | | |
| PHI 240 | Introduction to Ethics | 3 SHC | | | |
| **Social /Behavioral Sciences:** | | | | | |
| ECO 151 | Survey of Economics | 3 SHC | | | |
| ECO 251 | Prin of Microeconomics | 3 SHC | | | |
| GEO 110 | Introduction to Geography | 3 SHC | **3 SHC** | **0-3 SHC** | **Optional** |
| GEO 111 | World Regional Geography | 3 SHC | | | |
| PSY 101 | Applied Psychology | 3 SHC | | | |
| *PSY 102 | Human Relations | 2 SHC | | | |
| PSY 118 | Interpersonal Psychology | 3 SHC | | | |
| PSY 135 | Group Processes | 3 SHC | | | |
| PSY 150 | General Psychology | 3 SHC | | | |
| SOC 105 | Social Relationships | 3 SHC | | | |
| SOC 210 | Introduction to Sociology | 3 SHC | | | |
| SOC 215 | Group Processes | 3 SHC | | | |
| **Natural Sciences/Mathematics:** | | | | | |
| BIO 140 | Environmental Biology | 3 SHC | | | |
| BIO 160 | Introductory Life Science | 3 SHC | | | |
| MAT 110 | Mathematical Measurement | 3 SHC | | | |
| MAT 121 | Algebra/Trigonometry I | 3 SHC | **3 SHC** | **0-3 SHC** | **Optional** |
| MAT 143 | Quantitative Literacy | 3 SHC | | | |
| MAT 152 | Statistical Methods I | 4 SHC | | | |
| MAT 171 | Precalculus Algebra | 4 SHC | | | |
| PHY 110 | Conceptual Physics | 3 SHC | | | |
| PHY 121 | Applied Physics I | 4 SHC | | | |

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**II. Major Hours**. AAS, diploma, and certificate programs must include courses which offer specific job knowledge and skills. Work-based learning may be included in associate in applied science degrees up to a maximum of 8 semester hours of credit; in diploma programs up to a maximum of 4 semester hours of credit; and in certificate programs up to a maximum of 2 semester hours of credit. Below is a description of each section under Major Hours.

**A. Technical Core.** The technical core is comprised of specific courses which are required for all Program Majors under this Curriculum Standard. A diploma program offered under an approved AAS program standard or a certificate which is the highest credential level awarded under an approved AAS program standard must include a minimum of 12 semester hours credit derived from the curriculum core courses or core subject area of the AAS program.

**B. Program Major(s).** The Program Major must include a minimum of 12 semester hours credit from required subjects and/or courses. The Program Major is in addition to the technical core.

**C. Other Major Hours.** Other major hours must be selected from prefixes listed on the curriculum standard. A maximum of 9 semester hours of credit may be selected from each prefix listed, with the exception of prefixes listed in the core.

| **Agribusiness Systems: Agricultural Science Technology** | **AAS** | **Diploma** | **Certificate** |
|---|---|---|---|
| **Minimum Major Hours Required:** | **49 SHC** | **30 SHC** | **12 SHC** |
| **A. Technical Core:** | **28-34 SHC** | **12-18 SHC** | |
| #AGR 139 Intro to Sustainable Agriculture 3 SHC | | | |
| #AGR 170 Soil Science 3 SHC | | | |
| AGR 214 Agricultural Marketing 3 SHC | | | |
| ANS 110 Animal Science 3 SHC | | | |
| Work-Based Learning. Choose one: | | | |
| #WBL 111 Work-Based Learning I 1 SHC | | | |
| WBL 112 Work-Based Learning I 2 SHC | | | |
| WBL 113 Work-Based Learning I 3 SHC | | | |
| Pesticides/Alternatives. Choose one: | | | |
| #AGR 121 Biological Pest Mgmt 3 SHC | | | |
| AGR 140 Agricultural Chemicals 3 SHC | | | |
| **B. Program Major(s):** | | | |
| **Agribusiness Technology** | | | |
| AGR 212 Farm Business Management 3 SHC | | | |
| AGR 213 Ag Law & Finance 3 SHC | | | |
| *Select additional courses from the AGR prefix for a minimum of 12 SHC for the Agribusiness Technology AAS program. An Agribusiness Technology diploma requires a minimum of 12 SHC extracted from the required technical/program major core of the AAS degree.* | | | |
| **Agribusiness Education** | | | |
| AGR 110 Agricultural Economics 3 SHC | | | |
| AGR 160 Plant Science 3 SHC | | | |
| AGR 212 Farm Business Management 3 SHC | | | |
| EDU 163 Classroom Mgt and Instruction 3 SHC | | | |
| EDU 216 Foundations of Education 4 SHC | | | |
| **Sustainable Agriculture** | | | |
| #AGR 111 Basic Farm Maintenance 2 SHC | | | |
| #AGR 160 Plant Science 3 SHC | | | |
| #AGR 265 Organic Crop Prod: Spring 3 SHC or | | | |
| #AGR 266 Organic Crop Prod: Fall 3 SHC | | | |
| *Select additional courses from the AGR prefix for a minimum of 12 SHC for the Sustainable Agriculture AAS program. Courses required for the Sustainable Agriculture Diploma are designated with #* | | | |

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**C. Other Major Hours. T*o be selected from the following prefixes:***

ACC, ACM, AGR, ANS, BIO, BTC, BUS, CHM, CIS, CSC, DFT, ECO, EDU, ETR, FOR, GCM, GIS, HET, HOR, IVS, LAR, LSG, PED, PSY, TRF, VEN, WBL, WLD, and ZAS

*Up to two semester hour credits may be selected from ACA.*

*Up to three semester hour credits may be selected from the following prefixes: ARA, ASL, CHI, FRE, GER, ITA, JPN, LAT, POR, RUS and SPA.*

**III. Other Required Hours**

*A college may include courses to meet graduation or local employer requirements in a certificate (0-1 SHC), diploma (0-4 SHC), or an associate in applied science (0-7 SHC) program. These curriculum courses shall be selected from the Combined Course Library and must be approved by the System Office prior to implementation. Restricted, unique, or free elective courses may not be included as other required hours.*

**IV. Employability Competencies**

Fundamental competencies that address soft skills vital to employability, personal, and professional success are listed below. Colleges are encouraged to integrate these competencies into the curriculum by embedding appropriate student learning outcomes into one or more courses or through alternative methods.

**A. Interpersonal Skills and Teamwork** – The ability to work effectively with others, especially to analyze situations, establish priorities, and apply resources for solving problems or accomplishing tasks.

**B. Communication** – The ability to effectively exchange ideas and information with others through oral, written, or visual means.

**C. Integrity and Professionalism –** Workplace behaviors that relate to ethical standards, honesty, fairness, respect, responsibility, self-control, criticism and demeanor.

**D. Problem-solving** – The ability to identify problems and potential causes while developing and implementing practical action plans for solutions.

**E. Initiative and Dependability** – Workplace behaviors that relate to seeking out new responsibilities, establishing and meeting goals, completing tasks, following directions, complying with rules, and consistent reliability.

**F. Information processing** – The ability to acquire, evaluate, organize, manage, and interpret information.

**G. Adaptability and Lifelong Learning –** The ability to learn and apply new knowledge and skills and adapt to changing technologies, methods, processes, work environments, organizational structures and management practices.

**H. Entrepreneurship –** The knowledge and skills necessary to create opportunities and develop as an employee or self-employed business owner.

**An **Employability Skills Resource Toolkit** has been developed by NC-NET for the competencies listed above. Additional information is located at: http://www.nc-net.info/employability.php*

**The *North Carolina Career Clusters Guide was developed by the North Carolina Department of Public Instruction and the North Carolina Community College system to link the academic and Career and Technical Education programs at the secondary and postsecondary levels to increase student achievement. Additional information about Career Clusters is located at: http://www.nc-net.info/NC_career_clusters_guide.php or http://www.careertech.org.*

*Summary of Required Semester Hour Credits (SHC) for each credential:*

| | AAS | Diploma | Certificate |
|---|---|---|---|
| Minimum General Education Hours | 15 | 6 | 0 |
| Minimum Major Hours | 49 | 30 | 12 |
| Other Required Hours | 0-7 | 0-4 | 0-1 |
| **Total Semester Hours Credit (SHC)** | **64-76** | **36-48** | **12-18** |

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