# Agriscience Course No. 18002 Credit: 1.0

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| --- | --- | --- | --- |
| **Student name:**  |  | **Graduation Date:** |  |

Pathways and CIP Codes:Agribusiness Systems (01.0101); Comprehensive Agricultural Science (01.9999); Animal Science (01.0901); Biotechnology in Agriculture (25.1201); Food Products & Processing Systems (01.0401); Natural Resources & Environmental Systems (03.0101); Plant Systems (01.1101); Power, Structural & Technical Systems (01.0201);Business Management & Entrepreneurship (52.0799)

Course Description: **Technical Level:** Agriculture—Comprehensive courses cover a wide range of agricultural topics, including plant and animal science, production, and processing; agricultural mechanics, including tool and machine operation and repair; construction and repair of farm structures; business operations and management; and the careers available in the agricultural industry. They may also include topics such as chemical and soil science, ecology, agricultural marketing, and veterinary science.

Directions:The following competencies are required for full approval of this course. Check the appropriate number to indicate the level of competency reached for learner evaluation.

**RATING SCALE:**

4. Exemplary Achievement: Student possesses outstanding knowledge, skills or professional attitude.

3. Proficient Achievement:Student demonstrates good knowledge, skills or professional attitude. Requires limited supervision.

2. Limited Achievement:Student demonstrates fragmented knowledge, skills or professional attitude. Requires close supervision.

1. Inadequate Achievement:Student lacks knowledge, skills or professional attitude.

0. No Instruction/Training:Student has not received instruction or training in this area.

## Benchmark 1: Concepts of Agriculture

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 1.1 |  Describe basic needs of humans.  |  |
| 1.2 | Research agricultural commodities in the United States.  |  |
| 1.3 |  Investigate agricultural career opportunities. |  |
| 1.4 | Identify opportunities in FFA to meet career interests |  |

## Benchmark 2: Communicating in Agriscience

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 2.1 | Demonstrate verbal and nonverbal forms of communication.  |  |
| 2.2 | Identify and demonstrate characteristics of effective public speaking.  |  |
| 2.3 | Create an informative agricultural speech.  |  |
| 2.4 | Identify and demonstrate principles of parliamentary procedure.  |  |
| 2.5 | Identify important skills for teamwork |  |

## Benchmark 3: Principles of Science in Agriculture

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 3.1 | Explain and demonstrate common uses of laboratory equipment.  |  |
| 3.2 | Demonstrate safety rules in a laboratory setting.  |  |
| 3.3 | Collect and analyze data in an experiment. |  |
| 3.4 | Conduct laboratory experiments to determine distance, volume, mass, temperature, and density.  |  |
| 3.5 | Explain the characteristics of physical objects. |  |

## Benchmark 4: Natural Resources and Environmental Systems

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 4.1 | Identify characteristics of soil including particle size, porosity, texture, permeability and color |  |
| 4.2 | Explain soil formation and soil horizons.  |  |
| 4.3 | Perform water quality test.  |  |
| 4.4 | Identify and explain pollution from point and nonpoint sources. |  |
| 4.5 | Explain the water cycle.  |  |
| 4.6 | Describe the flow of energy in an ecosystem |  |
| 4.7 | Apply identification techniques to determine the species of wildlife or insect. Explain the interactions of all natural resources in an ecosystem. |  |

## Benchmark 5: Plant and Animal Systems

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 5.1 | Demonstrate the correct use of a microscope.  |  |
| 5.2 | Identify the parts and functions of plant and animal cells.  |  |
| 5.3 | Identify and describe the basic functions of plant and flower parts.  |  |
| 5.4 | Define and calculate germination rates. Collect data of respiration and photosynthesis of plant leaves.  |  |
| 5.5 | Describe plant macronutrients and deficiency symptoms.  |  |
| 5.6 | Categorize animals by gender and species.  |  |
| 5.7 | Identify basic internal and external anatomical parts of animals |  |
| 5.8 |  Explain priority decisions when selecting animals. |  |

## Benchmark 6: Food Science

### Competencies

| **#** | **DESCRIPTION** | **RATING** |
| --- | --- | --- |
| 6.1 | Explain the process of food items from production to processing.  |  |
| 6.2 | Conduct an experiment to determine bacteria levels in food products.  |  |
| 6.3 | Identify food safety procedures.  |  |
| 6.4 | Research food borne illnesses.  |  |
| 6.5 | Analyze factors that affect quality and yield grades of food products. |  |

## Benchmark 7: Biotechnology in Agriculture

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 7.1 | Investigate and explain emerging applications of biotechnology in agriculture.  |  |
| 7.2 | Explore ethical, legal, and social issues associated with biotechnology.  |  |
| 7.3 | Compare and contrast natural organisms and genetically engineered organisms |  |

## Benchmark 8: Agriculture Technology

### Competencies

| **#** | **Description** | **RATING** |
| --- | --- | --- |
| 8.1 | Identify and explain the impact of agriculture on energy sources.  |  |
| 8.2 | Measure electrical power.  |  |
| 8.3 | Compare characteristics of common fuels.  |  |
| 8.4 | Use GPS to find longitude and latitude coordinates. |  |
| 8.5 | Explain processes used to survey land.  |  |
| 8.6 | Use English and metric systems to measure objects. |  |

## Benchmark 9: Your Future in Agriculture

### Competencies

| **#** | **Description** | **Rating** |
| --- | --- | --- |
| 9.1 | Create personal SMART goals.  |  |
| 9.2 | Develop a personal vision statement.  |  |
| 9.3 | Describe issues with world population.  |  |
| 9.4 | Explain how agriculture can address future challenges to feed the world. |  |

I certify that the student has received training in the areas indicated.

Instructor Signature:

For more information, contact:

CTE Pathways Help Desk

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