Principles of Agriculture, Food, and Natural Resources, Semester B

Credits: 0.5

Course Overview and Goals

This one-semester course is intended to help you familiarize yourself with various aspects of the agriculture, food science, and natural resources industries. This course covers basic concepts in the field of agriculture, food science, and natural resources. It also covers career opportunities in these fields and the academic skills and knowledge required for a successful career in agriscience.

By the end of this course, you will be able to do the following:

- Evaluate the skills, characteristics, and qualities necessary for a career in the Agriculture, Food, and Natural Resources (AFN) field.
- Examine scientific knowledge related to the AFN industry, such as plant structure, soil formation, and conservation techniques.
- Analyze various factors of the Agriculture, Food, and Natural Resources industry, including related organizations, regulations, safety precautions, and marketing basics of the field.
- Create a plan to participate in a supervised agricultural experience and describe the benefits of participating in these programs and other student organizations.

Course Components and Grading Rubric

The table gives a breakdown of the weight for each component in the course. Weight represents the percentage of the total score coming from each activity.

Course Components	Count	Weight*
Pretest. *A pretest is an optional assessment, typically designed for credit recovery. If a student shows mastery of a lesson objective, the student may be automatically exempted from the upcoming activities associated with the mastered objective. Pretests are not included as a component of the student's final grade.*	3	0%

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Course Components	Count	Weight*
Module. *Each module in this course contains an interactive tutorial or study and an associated mastery test. Tutorials and studies combine instruction and practice to prepare students for the mastery test, which is a computer-scored lesson-level summative assessment. The module score comes from a student's score on the mastery test.*	15	20%
Discussion. *A discussion activity is an opportunity for students to collaborate with their peers. An online threaded discussion mirrors the educational experience of a classroom discussion initiated when a teacher asks a complex, open-ended question. Students can engage in the discussion by responding both to the question and to the thoughts of others allowing for higher-order thinking about terminal objectives.*	3	20%
Unit Activity. *A Unit Activity is at the end of a unit and constitutes one or more small tasks. Its purpose is to deepen understanding of key unit concepts and tie them together. Each Unit Activity includes a simple rubric. The teacher versions include both a rubric and modeled sample answers. Unit Activities are teacher graded.*	3	20%
Posttest. *A posttest appears at the end of each unit.*	3	20%
End-of-Semester Test. *An end-of-semester test (EOS) appears at the end of each course.*	1	20%
Total	**28**	**100%**

Weight Teachers may manually adjust these weights if desired, per district grading requirements.*

Scope and Sequence

UNIT 1: ANIMAL AND FOOD SCIENCE

In this unit, you will state concepts related to animal and food sciences. You will define the nine main body systems and describe animal growth and development as well as animal diseases and animal breeding. You will also name the major nutrients and their sources. In addition, you will state food processing, preserving, and packaging techniques. Finally, you will recall essential skills such as time, task, and resource management, goal setting, customer service skills, critical-thinking skills, and problem-solving skills.

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Activity	Activity Objective
Syllabus	• Review the Course Syllabus at the beginning of the course.
Animal Science	• Describe the principles of animal anatomy, physiology, health, reproduction, and management.
Food Science and Technology	• Identify the importance of food science and technology, and various aspects of food processing, food preservation, and food packaging.
Time, Task, and Resource Management	• List time, task, and resource management skills and explain how to organize and implement a productive plan of work.
Customer Service	• Recognize customer service skills and best practices, describe internal and external customers, and identify strategies for improving customer satisfaction.
Critical Thinking and Problem Solving	• Identify critical-thinking and problem-solving concepts, workplace applications, and analytical steps.
Unit Activity: Animal and Food Science	• List backyard conservation ideas and ways to execute them and write about one conservation action.

UNIT 2: TECHNOLOGY AND AGRICULTURE

In this unit, you will state the role of emerging technologies in agricultural sciences. You will also identify power, structural, and technical systems in the AFN industry. Then, you will recall various career options related to power systems. You will also name biotechnologies, genetically modified (GM) foods, greenhouse technology, precision farming, and new technologies such as biopharming

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and vertical farms. Finally, you will state the importance and use of the Internet and information technology.

Activity	Activity Objective
Power and Structural Technology	• Identify power, structural, and technical systems, and personal protective equipment used in the agriculture, food, and natural resources (AFN) industry.
Technology in Agricultural Science	• Describe various technologies and processes in the agriculture, food, and natural resources (AFN) industry.
Job-Specific Technologies	• Identify critical-thinking and problem-solving concepts, workplace applications, and analytical steps.
Information Technology	• Identify and describe the skills required to use computers and software programs effectively.
Internet Use and Security	• Recognize workplace Internet practices, associated risks, and privacy protection guidelines.
Unit Activity: Technology and Agriculture	• Apply problem-solving techniques to create a solution for any pollution issue and identify the country that consumes the most oil and produces the most greenhouse gases.

UNIT 3: OPPORTUNITIES IN AGRISCIENCE

In this unit, you will identify the role of management in agribusinesses and recall key management functions. You will also identify leadership skills, job acquisition and career advancement skills. Then, you will name entrepreneurial opportunities and describe various careers in the AFN industry. You will also state the skills, qualifications, and certifications needed for these careers. Finally, you will identify the steps used in scientific methods of research, recall major inventions

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and developments in the AFN industry, state the challenges faced by the agricultural sector, and identify solutions to these challenges.

Activity	Activity Objective
Management and Entrepreneurship	• Explain the role of management in the agriculture, food, and natural resources (AFN) industry and entrepreneurial opportunities in this industry.
Lifelong Learning	• Identify professional development strategies, training methods, and approaches for staying current with industry trends.
Job Acquisition and Advancement	• Explain the process of applying for and securing a job in your desired industry, as well as best practices for career advancement.
Careers in Agricultural Science	• Identify various careers in the agriculture, food, and natural resources (AFN) industry in the United States.
The Future of Agriculture	• Identify the steps in scientific research and recall developments and technologies in the agriculture, food, and natural resources (AFN) industry.
Unit Activity: Opportunities in Agriscience	• Create a business proposal for an AFN enterprise and list and explain the components of a business proposal.

Course Map

You will achieve course level objectives by completing each lesson's instruction, assignments, and assessments. For a detailed look at how the materials meet these objectives, review the course map.

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