

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

Course Overview

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

Course Goals

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

- State the principles of animal anatomy, physiology, health, reproduction, and management.
- Identify the importance of food science and technology and describe various aspects of food processing, food preservation, and food packaging.
- State how to set goals and manage time and resources effectively.
- Name the factors that affect customer satisfaction.
- Recall critical-thinking and problem-solving skills.
- Identify various technologies used at the workplace and explain how to use them ethically.
- Identify the role of management in the agriculture, food, and natural resources (AFN) industry and identify entrepreneurial opportunities and job-acquisition skills.
- State life-long learning, job acquisition, and advancement skills.
- Identify the steps in scientific research and recall developments and technologies in the agriculture, food, and natural resources (AFN) industry.

Prerequisite Skills

Principles of Agriculture, Food, and Natural Resources, Semester B has the following prerequisites:

- interest in the field of agriculture, food, and natural resources
- familiarity with the writing process and following guidelines

General Skills

To participate in this course, you should be able to do the following:

- Complete basic operations with word-processing software, such as Microsoft Word or Google Docs.
- Perform online research using various search engines and library databases.
- Communicate through email and discussion boards.

For a complete list of the general skills required for participation in online courses, refer to the Prerequisites section of the Student Orientation document, found at the beginning of this course.

Credit Value

Principles of Agriculture, Food, and Natural Resources, Semester B is a 0.5-credit course.

Course Materials

- notebook
- computer with an Internet connection and speakers or headphones
- Microsoft Word or equivalent
- Microsoft Excel or equivalent
- Microsoft PowerPoint or equivalent

Course Pacing Guide

This course description and pacing guide is intended to help you stay on schedule with your work. Note that your course teacher may modify the schedule to meet the specific needs of your class.

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. <i>Pretests are optional assessments, typically designed for credit recovery use. If a student shows mastery of a lesson's objective, the student may be automatically exempted from that lesson in the upcoming unit. Typically, teachers do not choose to employ exemptive pretests for first-time credit courses. Pretests are not included as a component of the student's final grade.</i>	3	0%
Module. <i>Each module in this course contains an interactive tutorial and an associated mastery test. Tutorials may include one or more Lesson Activities that constitute tasks associated with the tutorial. The module score comes from a student's score on the mastery test.</i>	15	20%
Discussion. <i>Online discussions allow for higher-order thinking about terminal objectives. An online threaded discussion mirrors the educational experience of a classroom discussion. Teachers can initiate a discussion by asking a complex, open-ended question. Students can engage in the discussion by responding both to the question and to the thoughts of others. Each unit in a course has one predefined discussion topic; teachers may add more discussion topics.</i>	3	20%
Unit Activity. <i>Unit Activities are at the end a unit and constitute one or more small tasks. Their 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.</i>	3	20%
Posttest. <i>The posttest appears at the end of the unit and mirrors the pretest in structure, content, and complexity.</i>	3	20%
End of Semester Test. <i>The end of semester test (EOS) appears at the end of the course. Students are delivered a few items from every tutorial in the course in order to assess the major course objectives.</i>	1	20%
Total	28	100%

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

Unit 1: Animal and Food Science

Summary

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.

Day	Activity/Objective	Type
1 day: 1	Syllabus and Student Orientation <i>Review the Student Orientation and Course Syllabus at the beginning of this course.</i>	Course Orientation
5 days: 2–6	Animal Science <i>State the principles of animal anatomy, physiology, health, reproduction, and management.</i>	Lesson
5 days: 7–11	Food Science and Technology <i>Identify the importance of food science and technology, and various aspects of food processing, food preservation, and food packaging.</i>	Lesson
4 days: 12–15	Time, Task, and Resource Management <i>State how to set goals and manage time and resources effectively.</i>	Lesson
4 days: 16–19	Customer Service <i>Name the factors that affect customer satisfaction.</i>	Lesson
4 days: 20–23	Critical Thinking and Problem Solving <i>Recall critical-thinking and problem-solving skills.</i>	Lesson
1 day: 24	Para Jumble	Game
5 days: 25–29	Unit Activity/Threaded Discussion—Unit 1	Unit Activity
1 day: 30	Post-test—Unit 1	Assessment

Unit 2: Technology and Agriculture

Summary

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

Day	Activity/Objective	Type
5 days: 31–35	Power and Structural Technology <i>Identify power, structural, and technical systems, and personal protective equipment used in the agriculture, finance, and natural resources (AFN) industry.</i>	Lesson
5 days: 36–40	Technology in Agricultural Science <i>Identify various technologies and processes in the agriculture, food, and natural resources (AFN) industry.</i>	Lesson
4 days: 41–44	Job-Specific Technologies <i>Identify various technologies used at the workplace and how to use them ethically.</i>	Lesson
4 days: 45–48	Information Technology <i>State how to use computers, file management techniques, and software effectively.</i>	Lesson
4 days: 49–52	Internet Use and Security <i>State ways to securely use the Internet.</i>	Lesson
1 day: 53	Space Jumble	Game
5 days: 54–58	Unit Activity/Threaded Discussion—Unit 2	Unit Activity
1 day: 59	Post-test—Unit 2	Assessment

Unit 3: Opportunities in Agriscience

Summary

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

Day	Activity/Objective	Type
4 days: 60–63	Management and Entrepreneurship <i>Identify the role of management in the agriculture, food, and natural resources (AFN) industry and entrepreneurial opportunities in this industry.</i>	Lesson
4 days: 64–67	Lifelong Learning <i>State lifelong-learning skills.</i>	Lesson
4 days: 68–71	Job Acquisition and Advancement <i>Identify job acquisition and advancement skills.</i>	Lesson
5 days: 72–76	Careers in Agricultural Science <i>Identify various careers in the agriculture, food, and natural resources (AFN) industry in the United States.</i>	Lesson
5 days: 77–81	The Future of Agriculture <i>Identify the steps in scientific research and recall developments and technologies in the agriculture, food, and natural resources (AFN) industry.</i>	Lesson
1 day: 82	Thwack-A-Mole	Game
5 days: 83–87	Unit Activity/Threaded Discussion—Unit 3	Unit Activity
1 day: 88	Post-test—Unit 3	Assessment
1 day: 89	Semester Review	
1 day: 90	End-of-Semester Test	Assessment

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 for Semester B](#).