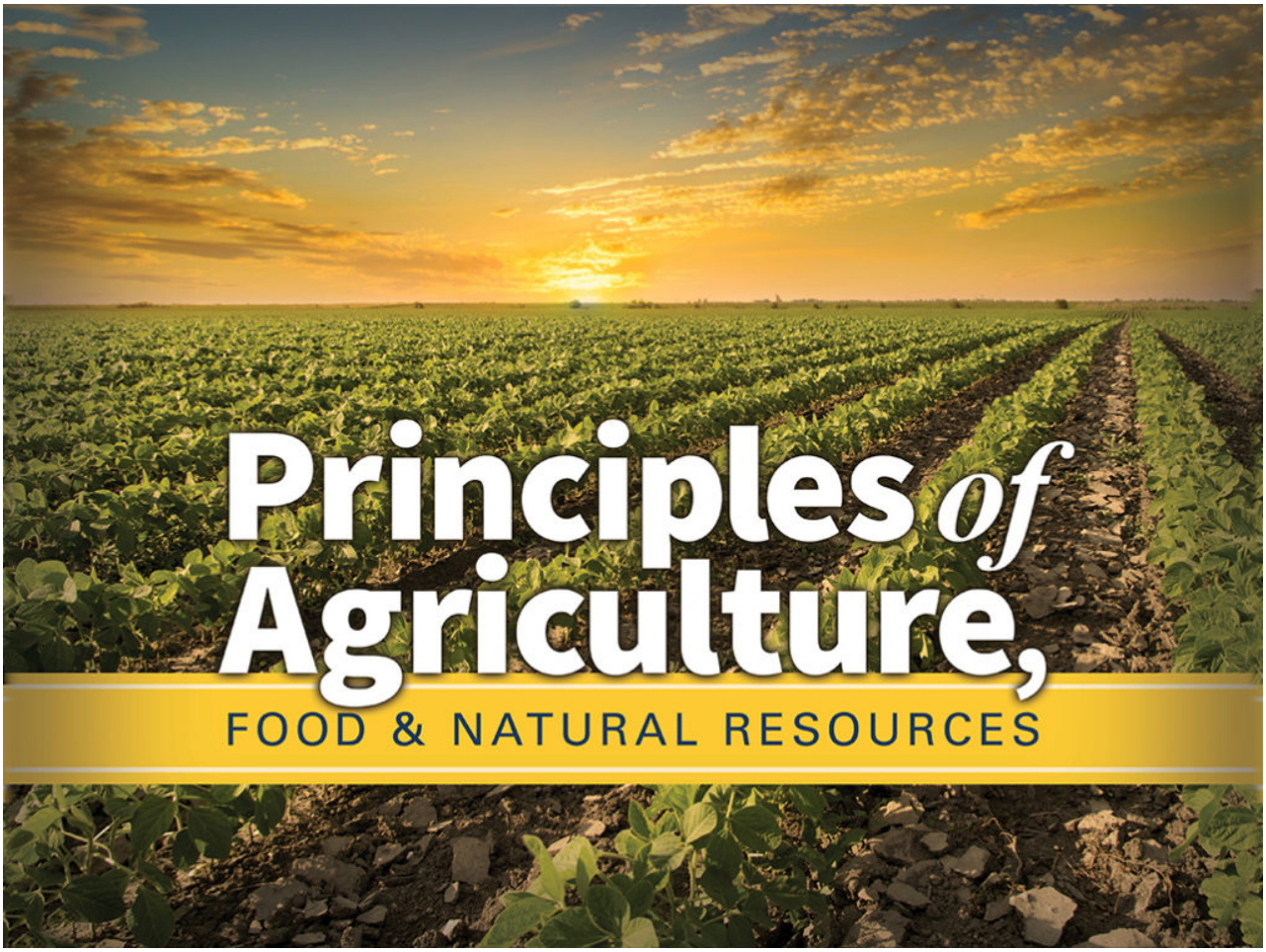
Course **Syllabus**

What you will learn in this course



Principles of Agriculture, Food & Natural Resources

Did you know that the world's population could be as high as 11 billion people by the year 2050? And certainly, as our population is growing, so too are our food needs. Even today, millions of people around the world experience hunger. How can we balance growing populations and keeping everyone fed? This is where the importance of agriculture, food, and natural resources comes in! Through the study of Principles of Agriculture: Food and Natural Resources, you will gain a stronger sense of how food ends up on the plate and how we can maximize the foods and natural resources the earth provides. You'll learn more about agriculture's history, animal husbandry, plant science, and natural resources, and you'll be better prepared for your part in sustaining the world.

Unit 1: Careers in Agriculture, Food, and Natural Resources

What do you think of when you think of a farmer, a baker, or a logger? For many people, it's an old-fashioned image—one involving hand tools, 4 a.m. alarms, and maybe even overalls! This isn't the reality of modern careers in farming, food processing, or natural resources. These careers are modern and innovative and rely upon rapidly advancing technology. Careers in agriculture, food, and natural resources provide some of the most essential things in life. Farmers grow the food we eat, and those in natural resources help to provide fuel to warm our homes in the winter. These careers support old-fashioned values while integrating modern technology to maximize production, protect the environment, and improve outcomes for both workers and consumers.

What will you learn in this unit?

- Identify different careers in agriculture, food, and natural resources
- Recognize what makes a good worker in agriculture, food, and natural resources
- Discuss why careers in agriculture, food, and natural resources are important
- Understand the importance of safety practices and protocols

UNIT 1 Assignments

Assignment	Type
Unit 1 Critical Thinking Questions	Homework
Unit 1 Lab	Homework
Unit 1 Activity	Homework
Unit 1 Science Experiment Part 1	Homework
Unit 1 Discussion 1	Discussion
Unit 1 Discussion 2	Discussion
Unit 1 Quiz	Quiz

Unit 2: Leadership, Ethics, and Work Habits

What does being a hard worker, an ethical person, a strong team member, and an effective leader have to do with agriculture and natural resources education? These traits shape who you are and how you will function in the workplace. And they shape the fundamental goals of agricultural

organizations, such as Future Farmers of America (FFA). In this unit, you'll learn about leadership, teamwork, ethics, and ethical dilemmas in agriculture, and about how FFA and other organizations prepare students for higher education, or the workplace, in agriculture and natural resources.

What will you learn in this unit?

- Understand the goals of FFA.
- Identify the value of teamwork and different roles on a team.
- Comprehend the importance of ethics in agriculture and natural resources.
- Recognize traits of a good leader.

UNIT 2 Assignments

Assignment	Type
Unit 2 Critical Thinking Questions	Homework
Unit 2 Lab	Homework
Unit 2 Activity	Homework
Unit 2 Discussion 1	Discussion
Unit 2 Discussion 2	Discussion
Unit 2 Quiz	Quiz

Unit 3: Agriculture, Food, and Natural Resources in Context

Once upon a time, people had to learn to farm. They had to learn to grow crops and raise animals for food, how to store food, and how to make new tools to use for farming, mining, and other tasks. As the population grew, they had to produce more food, and do so with fewer people as more of the population turned to work in factories. That change didn't happen everywhere, and today parts of the world remain predominantly agricultural, facing challenges and struggles even in the modern world.

What will you learn in this unit?

- Outline developments in the history of agriculture
- Explain the changes that occurred with the Agricultural Revolution

- Recognize differences between the developed and developing world
- Understand potential future developments in agriculture

UNIT 3 Assignments

Assignment	Type
Unit 3 Critical Thinking Questions	Homework
Unit 3 Lab	Homework
Unit 3 Activity	Homework
Unit 3 Discussion 1	Discussion
Unit 3 Discussion 2	Discussion
Unit 3 Quiz	Quiz

Unit 4: Recordkeeping & Information Technology

It's not all plows, mining equipment, and tractors—information technology is essential to manage and maintain records, track outcomes, and help you to effectively manage a farm, ranch, or other business enterprise. You have to be able to organize, plan, and maintain records to thrive, succeed, and turn a profit. For many people, careers in agriculture and small business are also careers as business owners, and your skills need to be as efficient in the office as in the fields.

What will you learn in this unit?

- Develop a business plan
- Keep records of business activities
- Maintain financial records
- Understand the ways modern information technology supports agriculture, food, and natural resources

UNIT 4 Assignments

Assignment	Type

Unit 4 Critical Thinking Questions	Homework
Unit 4 Lab	Homework
Unit 4 Activity	Homework
Unit 4 Discussion 1	Discussion
Unit 4 Discussion 2	Discussion
Unit 4 Quiz	Quiz

Unit 5: Plant Structures & Systems

In agriculture today, plants don't just provide us with fruits, vegetables, and grains. They also provide feed for meat and dairy producing animals and raw materials for biofuels. They even prevent soil erosion and maintain the natural landscape. Understanding what plants need, the different types of plants, and how they grow is essential to the study of agriculture, food, and natural resources. In this unit, you'll learn some basic botany and biology and be introduced to soil chemistry and some environmental science.

What will you learn in this unit?

- Identify the parts and growth cycle of different types of plants
- Understand plant breeding, hybridization, and reproduction
- Recognize the importance of healthy and balanced soil
- Explain the importance of key plants in modern agriculture

UNIT 5 Assignments

Assignment	Type
Unit 5 Critical Thinking Questions	Homework
Unit 5 Lab	Homework
Unit 5 Activity	Homework
Unit 5 Discussion 1	Discussion
Unit 5 Discussion 2	Discussion
Unit 5 Quiz	Quiz

Principles of Agriculture, Food & Natural Resources Midterm Exam

- Review information acquired and mastered from this course up to this point.
- Take a course exam based on material from the first five units in this course (Note: You will be able to open this exam only one time.)

MIDTERM Assignments

Assignment	Type
Midterm Exam	Exam
Midterm Discussion	Discussion

Unit 6: Understanding Animal Science

Farmers aren't vets, but they do have to understand their livestock to provide them with the care they need. This includes different types of livestock and their function, animal anatomy, reproduction, and breeding. You'll learn about different types of animals: poultry, sheep, goats, and cattle. If you have livestock to care for, you'll need to understand milk and egg production, shearing schedules, and normal growth rates.

What will you learn in this unit?

- Recognize common types of livestock
- Understand the function of different animals in agriculture
- Gain an informed knowledge of normal animal anatomy
- Identify breeding practices and reproductive patterns

UNIT 6 Assignments

Assignment	Type
Unit 6 Critical Thinking Questions	Homework
Unit 6 Lab	Homework
Unit 6 Activity	Homework

Unit 6 Discussion 1	Discussion
Unit 6 Discussion 2	Discussion
Unit 6 Quiz	Quiz

Unit 7: Food Processing & Production

Some foods can be eaten straight from the farm or orchard—think of a summer peach, freshly picked. Most foods, however, take some processing in the food production industry. Processing can be large scale or small scale, but it involves a range of actions from butchering and pasteurizing to canning and freezing. You'll need to know how food production works and what producers and customers need to run a successful farm or agricultural enterprise.

What will you learn in this unit?

- Identify different types of food processing and production
- Recognize how food goes from the farm to the consumer
- Understand current and changing food trends
- Explain the interaction between farmers and food processing

UNIT 7 Assignments

Assignment	Type
Unit 7 Critical Thinking Questions	Homework
Unit 7 Lab	Homework
Unit 7 Activity	Homework
Unit 7 Discussion 1	Discussion
Unit 7 Discussion 2	Discussion
Unit 7 Quiz	Quiz

Unit 8: Power, Structural, and Technical Systems

Power, structural, and technical systems keep the industries of agriculture, food, and natural resources moving. These are the skills that build the barns, design and construct equipment, and keep engines in trucks and tractors running. In this unit, you'll learn about engines and power

tools, construction and welding, and some of the high-tech and innovative computer and engineering skills in use in these fields. This range of skills varies from everyday tasks to specialized job skills, and they are essential to working in these hands-on occupations.

What will you learn in this unit?

- Describe a variety of different power systems
- Explain the basic operation of an internal combustion engine
- Identify key structural skills useful in agriculture, food, and natural resources
- Recognize technical skills essential for operations in agriculture, food, and natural resources

UNIT 8 Assignments

Assignment	Type
Unit 8 Critical Thinking Questions	Homework
Unit 8 Lab	Homework
Unit 8 Activity	Homework
Unit 8 Discussion 1	Discussion
Unit 8 Discussion 2	Discussion
Unit 8 Quiz	Quiz

Unit 9: Natural Resources Today

Although natural resources do not include food, they're just as essential as food in many ways. Today, we rely on this industry for energy, power, and much more. In this unit, you will learn about natural resources and how we use those resources; these include all of the things we use that come from nature: water, coal, oil, and other resources. Natural resources meet a wide variety of needs for people—from fertile farmland to metal ores. But the extraction and use of natural resources can damage the environment in a variety of ways. Sustainable practices enable the use of natural resources at a relatively limited environmental cost.

What will you learn in this unit?

- Identify key natural resources
- Understand how natural resources are used and extracted

- Recognize the risks and benefits of different natural resources
- Identify key practices to maintain sustainability

UNIT 9 Assignments

Assignment	Type
Unit 9 Critical Thinking Questions	Homework
Unit 9 Lab	Homework
Unit 9 Activity	Homework
Unit 9 Discussion 1	Discussion
Unit 9 Discussion 2	Discussion
Unit 9 Quiz	Quiz

Unit 10: Agriculture & the Environment

Environmental well-being and considerations are essential to the continued production of food and natural resources. In this unit, you'll learn about practices in agriculture, food processing, and natural resources that damage the environment, and about new ideas about sustainability to protect the environment from that damage. The three pillars of sustainability make environmental care only one of three key factors to consider, along with economic well-being, social consideration, and the well-being of workers. In addition, you'll learn about some new ways technology is supporting employee safety in these fields.

What will you learn in this unit?

- Recognize the effects of agriculture, food, and natural resources on the environment
- Understand the importance of laws regulating these industries
- Explain the importance of conservation and alternative energy
- Address concerns about workplace safety

UNIT 10 Assignments

Assignment	Type

Unit 10 Critical Thinking Questions	Homework
Unit 10 Lab	Homework
Unit 10 Science Experiment Final Report	Homework
Unit 10 Discussion 1	Discussion
Unit 10 Discussion 2	Discussion
Unit 10 Quiz	Quiz

Principles of Agriculture, Food & Natural Resources Final Exam

- Review information acquired and mastered from this course up to this point.
- Take a course exam based on material from units six to ten in this course – the last five units. (Note: You will be able to open this exam only one time.)

FINAL Assignments

Assignment	Type
Final Exam	Exam
Final Exam Discussion	Discussion