

## Course **Syllabus**

What you will learn in this course

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### **Agriscience 1: Introduction**

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The word “agriculture” often evokes images of farms, fields, and livestock, and while all of these representations are correct and essential, the field of Agriculture is so much more! In Agriscience I: Introduction, you’ll explore how agriscientists play key roles in improving agriculture, food production, and the conservation of natural resources along with the technologies used to keep the field thriving. Are you ready to explore the diverse careers in agriscience and how you can prepare to positively impact the planet? Let’s get growing!

### **Unit 1: The Importance of Agriscience**

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Our cities and towns have been shaped by agriculture, with the history of agriculture affecting not just geography but economies and cultures. But all the changes that farming has brought to civilization would not be possible without the advances brought about by scientific discoveries— agriscience, to be more exact. Citrus fruits make excellent cases in point about how two simple

fruits—oranges and limes—have influenced and been influenced by weather, science, culture, and economics. We'll wrap it all up by learning about some internet resources for budding agriscientists and how to interact with poise when writing on the web or for business.

## What will you learn in this unit?

1. Explain how the history of agriculture has influenced the development of cities and economies
2. Analyze the variables impacting imports and exports
3. Determine the relationship between agriculture and society at the local, state, national, and international levels
4. Evaluate the reliability of a website and recognize those websites that are appropriate for use in agriscience
5. Formulate a business email and write with appropriate business etiquette

<b>UNIT 1 Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Unit 1 Critical Thinking Questions	Homework
Unit 1 Activity 1	Homework
Unit 1 Activity 2	Homework
Unit 1 Activity 3	Homework
Unit 1 Discussion 1	Discussion
Unit 1 Discussion 2	Discussion
Unit 1 Quiz	Quiz

## Unit 2: Agriscience and the Environment

Agriscience depends on the natural environment to produce food and other goods for humankind, so a healthy environment keeps agriculture healthy as well. Soil, water, and air can be vulnerable to pollution; learning where pollution comes from will help us understand how to protect these precious natural resources. Agriscientists have many best practices they can use to prevent harm to the environment. Many products, like biofuels, can also help keep the environment cleaner. Plus, we will learn how important communication is for any business,

including recordkeeping, nonverbal communication, listening, and online and meeting etiquette.

## What will you learn in this unit?

1. Explain the relationship between agriscience and the environment
2. Identify threats to a healthy environment
3. Compare and contrast practices for conserving renewable and nonrenewable resources
4. Describe how natural resources are used in agriculture
5. Demonstrate effective communication skills

<b>UNIT 2 Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Unit 2 Critical Thinking Questions	Homework
Unit 2 Activity 1	Homework
Unit 2 Activity 2	Homework
Unit 2 Activity 3	Homework
Unit 2 Discussion 1	Discussion
Unit 2 Discussion 2	Discussion
Unit 2 Quiz	Quiz

## Unit 3: Plant Science

Now let's learn about the secret—and not-so-secret—life of plants and the many uses they serve for humans, including shelter, clothing, food, and medicine. From root to flower, and vacuole to endoplasmic reticulum, you'll find out what makes plants grow and reproduce. You'll learn what nutrients plants get from soil and water, and how to categorize soil. With the complexity of plants, learning about critical thinking can help you to analyze problems using reasoning to suit your challenge.

## What will you learn in this unit?

1. Investigate the many uses for plants in industry and medicine, in making our lives more beautiful, and as food products

2. Identify the major parts of plants and state the important functions of each
3. Compare the cell structure and function of plants, animals, bacteria, and viruses
4. Apply the different types of soil classification
5. Analyze complex problems by using critical-thinking skills

<b>UNIT 3 Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Unit 3 Critical Thinking Questions	Homework
Unit 3 Activity 1	Homework
Unit 3 Activity 2	Homework
Unit 3 Activity 3	Homework
Unit 3 Discussion 1	Discussion
Unit 3 Discussion 2	Discussion
Unit 3 Quiz	Quiz

## Unit 4: The Animal Element

Humans domesticated animals centuries ago, and today livestock have multiple uses beyond food and fiber. Not only do animals and their byproducts play a significant role in the American economy, but we also depend on having a variety of food sources. Speaking of food, we'll explore the nutrients animals need and why cows have four chambers in their stomachs. Also, we'll discuss how ethical behavior is particularly important in the agriculture industry—because the health of so many living creatures depends on it—and how ethical and appropriate conduct is a necessity in any workplace.

### What will you learn in this unit?

1. Differentiate between domestication and natural selection
2. Compare the economic importance of different livestock animals with their byproducts
3. Analyze the basic nutritional needs of animals and explain the different types of digestion in livestock
4. Apply ethical concepts to assess the appropriateness of the treatment of animals in agriculture and apply ethics to workplace situations

<b>UNIT 4 Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Unit 4 Critical Thinking Questions	Homework
Unit 4 Activity 1	Homework
Unit 4 Activity 2	Homework
Unit 4 Activity 3	Homework
Unit 4 Discussion 1	Discussion
Unit 4 Discussion 2	Discussion
Unit 4 Quiz	Quiz

## Agriscience 1 Midterm Exam

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

<b>MIDTERM Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Midterm Exam	Exam
Midterm Discussion	Discussion

## Unit 5: Animal Biology and Pest Control

To work with animals, agriscientists need to understand anatomy and genetics, producing healthy animals that provide consumers with nutritious *and* delicious food products. Pests, on the other hand, need to be controlled so that agricultural animals and plants can thrive and feed the world. But managing those pesky pests often involves using chemicals, which can be hazardous. We'll look at how to identify the dangers of different pesticides, as well as how you can protect yourself and the environment from contamination. Beyond chemicals, farms are

some of the most dangerous workplaces, so understanding how to avoid accidents or handle emergencies will prove invaluable to anyone who wishes to work in the agricultural industry.

## What will you learn in this unit?

1. Compare the anatomical features and growth patterns of various domesticated animals
2. Assess the probability of certain traits appearing in the offspring of animals
3. Investigate the possible control measures for various agricultural pests
4. Evaluate the dangers in agricultural workplaces to formulate plans to mitigate risks

<b>UNIT 5 Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Unit 5 Critical Thinking Questions	Homework
Unit 5 Activity 1	Homework
Unit 5 Activity 2	Homework
Unit 5 Activity 3	Homework
Unit 5 Discussion 1	Discussion
Unit 5 Discussion 2	Discussion
Unit 5 Quiz	Quiz

## Unit 6: Technology and Agriscience

Technology is science applied to real life, so let's remember the scientific method as we consider the cool new technologies that are changing agriculture—from GPS mapping to robots. To understand the role of technology in our food system, we will trace the route our food takes on its way to our tables and explore the methods for keeping food fresh along the way. Preservatives and additives can help food last longer on its way to us, but there are also some controversies about other methods of changing food production: synthetic growth hormones for dairy cows, GMOs, and cloning. Finally, we will explore how keeping good records of production and budget can be beneficial to anyone in agriscience.

## What will you learn in this unit?

1. Describe advances in agricultural technology and how they may change food production and distribution
2. Investigate careers in agriscience alongside each step in the food system
3. Compare consumer concerns over food safety to the available science, considering ways to communicate the findings to a consumer audience
4. Create a recordkeeping system for financial and production records that will allow a farmer to interpret data to apply to improvements on the farm

<b>UNIT 6 Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Unit 6 Critical Thinking Questions	Homework
Unit 6 Activity 1	Homework
Unit 6 Activity 2	Homework
Unit 6 Activity 3	Homework
Unit 6 Discussion 1	Discussion
Unit 6 Discussion 2	Discussion
Unit 6 Quiz	Quiz

## Unit 7: Careers in Agriscience

Opportunities to help feed the world can take agriscientists to many places. Before you start your journey, make sure you are taking the right courses in high school to help you prepare for a career. We will explore some of the fascinating career options, and you can also begin to think about your aptitudes, desires, and interests so you can chart a course toward a satisfying choice. Success will depend on understanding the tools and equipment that are used in agricultural production, and perhaps you will even decide to help develop these technologies further as part of your agriscience career. As you move toward your goal, there are opportunities to participate in activities and internships that will help you learn and practice professional skills, such as programs with the National Future Farmers of America. And while you are honing your skills, you can practice your professionalism with appropriate dress and language and also demonstrate strong character—which includes responsibility, trustworthiness, and showing respect in all that you do.

## What will you learn in this unit?

1. Hypothesize how agriscience advances could help farmers beyond North America to feed the populations in their regions
2. Compare the working environment, needed skills, and educational requirements for various agriscience careers
3. Differentiate among the types of tools and equipment used in agriculture and consider the appropriate safety measures and personal protective equipment needed to operate them
4. Create a set of SMART goals that includes education and experience you will need to prepare for a career that interests and inspires you

<b>UNIT 7 Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Unit 7 Critical Thinking Questions	Homework
Unit 7 Activity 1	Homework
Unit 7 Activity 2	Homework
Unit 7 Discussion 1	Discussion
Unit 7 Discussion 2	Discussion
Unit 7 Quiz	Quiz

## Unit 8: Agribusiness Management

Agriculture is a business, and if you plan to work in agriscience, you'll need to understand what makes this business profitable, which is essentially supply and demand. Those in agriscience should know the many ways livestock and crops are sold and marketed so that their contributions increase the value of these products. As global trade becomes an ever bigger part of agriculture, learning about management in a global context will help agriscientists further comprehend the changing trends in the field. Leadership skills come in handy no matter what career you choose in the agriculture industry, and anyone can develop strong leadership skills to use in this diverse and exciting profession.

## What will you learn in this unit?

1. Analyze pricing trends in agricultural products based on the principles of supply and demand



2. Compare livestock and crop market structures to assess the pros and cons of each type of farming business
3. Connect the trends in food production and consumption in the United States to the impact that these trends may have on health, safety, the environment, and the world food supply
4. Create a strategic plan to participate in agricultural, scientific, and community programs that will help to develop leadership skills

<b>UNIT 8 Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Unit 8 Critical Thinking Questions	Homework
Unit 8 Activity 1	Homework
Unit 8 Activity 2	Homework
Unit 8 Activity 3	Homework
Unit 8 Discussion 1	Discussion
Unit 8 Discussion 2	Discussion
Unit 8 Quiz	Quiz

## **Agriscience 1 Final Exam**

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

<b>FINAL Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Final Exam	Exam

Class Reflection Discussion	Discussion
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