



AGRISCIENCE 2: SUSTAINING HUMAN LIFE

Science and technology are revolutionizing many areas of our lives, and agriculture is no exception! From aquaculture to genetic engineering, agriscience is finding new ways to better produce and manage plants, animals, and other natural resources. In Agriscience 2, you'll build on your existing knowledge of plant and animal science and delve deeper into important areas such as soil science and weed management. You'll also explore research on plant and animal diseases as well as the insects and other pests that can impact agricultural enterprises and natural resources.

Required Materials

- Plant seeds or cuttings
- Growing media
- Growing container
- A sharp blade and rooting hormone, depending on the plant you choose

- Soil or other growing media
- Soil test kit
- 2-3 pots
- Seeds of your choice (make sure your growing medium is appropriate for the seed you chose)
- Plant
- Pest management materials (vary based on chosen strategy)

Unit 1: Introduction to Horticulture & Plant Science

Do you have a thumb so green it glows? Are you happiest when surrounded by growing things? If so, you may be planning a future in horticulture or plant science. In this unit, you'll learn what horticulture is all about, from growing plants to designing garden spaces. You'll also learn more about the exciting trends in horticulture and plant science, including plant modifications and designing for sustainability. Finally, you'll learn how to stay safe working in the nursery or garden.

What will you learn in this unit?

- Define horticulture.
- Identify different types of horticulture.
- Recognize key trends and technology relevant for plant scientists.
- Understand the basics of workplace safety for horticulturalists.

UNIT 1 Assignments	
Assignment	Type
Unit 1 Text Questions	Homework
Unit 1 Lab Questions	Homework
Unit 1 Discussion Assignment 1	Discussion
Unit 1 Discussion Assignment 2	Discussion
Unit 1 Quiz	Quiz

Unit 2: Identifying & Classifying Plants

To study plants and to grow them, you need to first identify them. Identifying a plant tells you how it reproduces, where it grows best, and how much sun and water it needs. Identifying a plant also

provides information about its growth pattern. In this unit, you'll learn a number of different ways to identify, classify, and categorize plants. These strategies will help you to understand plants and to choose plants for different uses commercially, in the garden, and at home.

What will you learn in this unit?

- Classify an unidentified plant into a basic group and begin the process of identifying it.
- Explain plant taxonomy and how we scientifically group, classify, and name plants.
- Understand how different types of plants live and grow over their lifetime.
- Recognize key structural differences between different types of plants.

UNIT 2 Assignments	
Assignment	Type
Unit 2 Text Questions	Homework
Unit 2 Lab Questions	Homework
Unit 2 Discussion Assignment 1	Discussion
Unit 2 Discussion Assignment 2	Discussion
Unit 2 Quiz	Quiz

Unit 3: Plant Growth, Propagation, & Development

To study plants, to grow plants, and even to grow the products of plants, you need to understand how plants reproduce and how they can be propagated in a laboratory or garden. You also have to understand what they need to grow, and how plants use light to provide energy. In this unit, you'll learn many different ways to propagate plants, from seeds to grafting, and you'll develop an improved understanding of how plants grow.

What will you learn in this unit?

- Identify both sexual and asexual plant reproduction strategies.
- Explain how seeds are fertilized and how they grow.
- Recognize different means of propagating plants.
- Define the process of photosynthesis.

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UNIT 3 Assignments

Assignment	Type
Unit 3 Text Questions	Homework
Unit 3 Lab Questions	Homework
Unit 3 Discussion Assignment 1	Discussion
Unit 3 Discussion Assignment 2	Discussion
Unit 3 Quiz	Quiz

Unit 4: Soil Science

Growing plants—in the laboratory, on the farm, in the garden, or even in a flowerpot—requires that the plants have access to a growing medium, typically some sort of soil. With only a few exceptions, you can't grow plants out of thin air. Soil science is the study of soil as a natural resource, including how it is used and managed. In this unit, you'll learn about different types of soil, how to improve soil, and why good-quality soil is essential for plant growth. You'll also learn about other types of planting media and how to use them for container gardening and other applications. With this knowledge, you'll be able to sustain vigorous and healthy plants of all types.

What will you learn in this unit?

- Describe soil types and their effects on plants.
- Discuss trends and advances in soil science.
- Identify growing media and fertilizers.
- Demonstrate proper use of growing media and fertilizers.

UNIT 4 Assignments

Assignment	Type
Unit 4 Text Questions	Homework
Unit 4 Lab Questions	Homework
Unit 4 Discussion Assignment 1	Discussion
Unit 4 Discussion Assignment 2	Discussion

Agriscience 2 Midterm Exam

- Review information acquired and mastered from this course up to this point.
- Take a course exam based on material from the first four 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 Assignment	Discussion

Unit 5: Irrigation & Watering

As you've learned, plants need sunlight to grow, but they also need water. In agricultural science, plants are most often supplied with water through irrigation, or the intentional application of water to the plants, or to the ground surrounding the plants. In this unit, you'll learn how irrigation systems work and about research and discoveries in irrigation science today.

What will you learn in this unit?

- Describe the science behind irrigation and watering systems.
- Irrigate plants using an irrigation system.
- Maintain irrigation systems.
- Explain irrigation techniques for plants and turf.

UNIT 5 Assignments	
Assignment	Type
Unit 5 Text Questions	Homework
Unit 5 Lab Questions	Homework
Unit 5 Discussion Assignment 1	Discussion

Unit 5 Discussion Assignment 2	Discussion
Unit 5 Quiz	Quiz

Unit 6: Fertilization & Pest Management

To be healthy, plants have to be provided for and protected. Providing for plants means more than just healthy soil—it also requires that you learn how to apply and use fertilizer. In addition, protecting plants means that you need to know about integrated pest management in all its forms and how to use it to reduce the risks associated with insects, wildlife, and unwanted plants. You also need to understand the laws which govern the use of these chemicals. They can be dangerous, and state and federal governments have protections in place concerning their sale, use, and labeling.

What will you learn in this unit?

- Describe integrated pest management approaches.
- Use a pest control system.
- Apply proper fertilizer application components.
- Manage and apply fertilizer schedules.

UNIT 6 Assignments	
Assignment	Type
Unit 6 Text Questions	Homework
Unit 6 Lab Questions	Homework
Unit 6 Discussion Assignment 1	Discussion
Unit 6 Discussion Assignment 2	Discussion
Unit 6 Quiz	Quiz

Unit 7: Landscape Science

Landscape science and design implements many of the plant science skills you've learned throughout this course. Landscaping enables you to arrange plant materials and outdoor construction and installations in ways that are both functional and decorative. Smart landscape science enables landscaping to serve a number of additional functions, including reducing soil erosion, limiting water use, and cutting heating and cooling costs.

What will you learn in this unit?

- Identify principles of landscape design.
- Apply best management practices in landscape design.
- Apply principles of landscape design and maintenance.
- Recognize and apply landscape science for sustainability.

UNIT 7 Assignments	
Assignment	Type
Unit 7 Text Questions	Homework
Unit 7 Lab Questions	Homework
Unit 7 Discussion Assignment 1	Discussion
Unit 7 Discussion Assignment 2	Discussion
Unit 7 Quiz	Quiz

Unit 8: Plant Management

Managing plants and planting sites is essential to keep plants alive in a wide variety of settings, from the garden to the lab. In this unit, you will look at current and future applications of the skills, information, and science you've learned in this course. The skills of agriscience are essential to support the future of our population and our planet. Scientists in plant laboratories are working to develop new plant technologies to improve production and nutrition and address key issues of climate change.

What will you learn in this unit?

- Harvest, transport, and install plant materials.
- Manage planting sites and needs.
- Discuss emerging trends in horticulture and plant management.
- Describe future applications of plant science.

UNIT 8 Assignments	

Assignment	Type
Unit 8 Text Questions	Homework
Unit 8 Lab Questions	Homework
Unit 8 Discussion Assignment 1	Discussion
Unit 8 Discussion Assignment 2	Discussion
Unit 8 Quiz	Quiz

Agriscience 2 Final Exam

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

FINAL Assignments	
Assignment	Type
Final Exam	Exam
Class Reflection Discussion Assignment	Discussion