

**Agriculture, Food & Natural Resources Career Cluster**  
**General Horticulture and Plant Science**  
**Course Number 01.46100**

**Course Description**

This course is designed as an introduction for the Horticulture-Plant Science Pathway Program of Study. The course introduces the major concepts of plant and horticulture science. Classroom and laboratory activities are supplemented through supervised agricultural experiences and leadership programs and activities.

**Course Standard 1**

**AFNR-GHPS-1**

The following standard is included in all CTAE courses adopted for the Career Cluster/Pathways. Teachers should incorporate the elements of this standard into lesson plans during the course. The topics listed for each element of the standard may be addressed in differentiated instruction matching the content of each course. These elements may also be addressed with specific lessons from a variety of resources. This content is not to be treated as a unit or separate body of knowledge but rather integrated into class activities as applications of the concept.

**Standard: Demonstrate employability skills required by business and industry.**

The following elements should be integrated throughout the content of this course.

**1.1 Communicate effectively through writing, speaking, listening, reading, and interpersonal abilities.**

Person-to-Person Etiquette	Telephone and Email Etiquette	Cell Phone and Internet Etiquette	Communicating At Work	Listening
Interacting with Your Boss	Telephone Conversations	Using Blogs	Improving Communication Skills	Reasons, Benefits, and Barriers
Interacting with Subordinates	Barriers to Phone conversations	Using Social Media	Effective Oral Communication	Listening Strategies
Interacting with Co-workers	Making and Returning Calls		Effective Written Communication	Ways We Filter What We Hear
Interacting with Suppliers	Making Cold Calls		Effective Nonverbal Skills	Developing a Listening Attitude
	Handling Conference Calls		Effective Word Use	Show You Are Listening
	Handling Unsolicited Calls		Giving and Receiving Feedback	Asking Questions
				Obtaining Feedback
				Getting Others to Listen

Nonverbal Communication	Written Communication	Speaking	Applications and Effective Résumés
Communicating Nonverbally	Writing Documents	Using Language Carefully	Completing a Job Application
Reading Body Language and mixed Messages	Constructive Criticism in Writing	One-on-One Conversations	Writing a Cover Letter
Matching Verbal and Nonverbal communication		Small Group Communication	Things to Include in a Résumé
Improving Nonverbal Indicators		Large Group Communication	Selling Yourself in a Résumé
Nonverbal Feedback		Making Speeches	Terms to Use in a Résumé

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Showing Confidence Nonverbally		Involving the Audience	Describing Your Job Strengths
Showing Assertiveness		Answering Questions	Organizing Your Résumé
		Visual and Media Aids	Writing an Electronic Résumé
		Errors in Presentation	Dressing Up Your Résumé

### 1.2 Demonstrate creativity by asking challenging questions and applying innovative procedures and methods.

Teamwork and Problem Solving	Meeting Etiquette
Thinking Creatively	Preparation and Participation in Meetings
Taking Risks	Conducting Two-Person or Large Group Meetings
Building Team Communication	Inviting and Introducing Speakers
	Facilitating Discussions and Closing
	Preparing Visual Aids
	Virtual Meetings

### 1.3 Exhibit critical thinking and problem solving skills to locate, analyze and apply information in career planning and employment situations.

Problem Solving	Customer Service	The Application Process	Interviewing Skills	Finding the Right Job
Transferable Job Skills	Gaining Trust and Interacting with Customers	Providing Information, Accuracy and Double Checking	Preparing for an Interview	Locating Jobs and Networking
Becoming a Problem Solver	Learning and Giving Customers What They Want	Online Application Process	Questions to Ask in an Interview	Job Shopping Online
Identifying a Problem	Keeping Customers Coming Back	Following Up After Submitting an Application	Things to Include in a Career Portfolio	Job Search Websites
Becoming a Critical Thinker	Seeing the Customer's Point	Effective Résumés:	Traits Employers are Seeking	Participation in Job Fairs
Managing	Selling Yourself and the Company	Matching Your Talents to a Job	Considerations Before Taking a Job	Searching the Classified Ads
	Handling Customer Complaints	When a Résumé Should be Used		Using Employment Agencies
	Strategies for Customer Service			Landing an Internship
				Staying Motivated to Search

### 1.4 Model work readiness traits required for success in the workplace including integrity, honesty, accountability, punctuality, time management, and respect for diversity.

Workplace Ethics	Personal Characteristics	Employer Expectations	Business Etiquette	Communicating at Work
Demonstrating Good Work Ethic	Demonstrating a Good Attitude	Behaviors Employers Expect	Language and Behavior	Handling Anger
Behaving Appropriately	Gaining and Showing Respect	Objectionable Behaviors	Keeping Information Confidential	Dealing with Difficult Coworkers
Maintaining Honesty	Demonstrating Responsibility	Establishing Credibility	Avoiding Gossip	Dealing with a Difficult Boss
Playing Fair	Showing Dependability	Demonstrating Your Skills	Appropriate Work Email	Dealing with Difficult Customers
Using Ethical Language	Being Courteous	Building Work Relationships	Cell Phone Etiquette	Dealing with Conflict
Showing Responsibility	Gaining Coworkers' Trust		Appropriate Work Texting	

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Reducing Harassment	Persevering		Understanding Copyright	
Respecting Diversity	Handling Criticism		Social Networking	
Making Truthfulness a Habit	Showing Professionalism			
Leaving a Job Ethically				

### 1.5 Apply the appropriate skill sets to be productive in a changing, technological, diverse workplace to be able to work independently and apply team work skills.

Expected Work Traits	Teamwork	Time Management
Demonstrating Responsibility	Teamwork Skills	Managing Time
Dealing with Information Overload	Reasons Companies Use Teams	Putting First Things First
Transferable Job Skills	Decisions Teams Make	Juggling Many Priorities
Managing Change	Team Responsibilities	Overcoming Procrastination
Adopting a New Technology	Problems That Affect Teams	Organizing Workspace and Tasks
	Expressing Yourself on a Team	Staying Organized
	Giving and Receiving Constructive Criticism	Finding More Time
		Managing Projects
		Prioritizing Personal and Work Life

### 1.6 Present a professional image through appearance, behavior and language.

On-the-Job Etiquette	Person-to-Person Etiquette	Communication Etiquette	Presenting Yourself
Using Professional Manners	Meeting Business Acquaintances	Creating a Good Impression	Looking Professional
Introducing People	Meeting People for the First Time	Keeping Phone Calls Professional	Dressing for Success
Appropriate Dress	Showing Politeness	Proper Use of Work Email	Showing a Professional Attitude
Business Meal Functions		Proper Use of Cell Phone	Using Good Posture
Behavior at Work Parties		Proper Use in Texting	Presenting Yourself to Associates
Behavior at Conventions			Accepting Criticism
International Etiquette			Demonstrating Leadership
Cross-Cultural Etiquette			
Working in a Cubicle			

### Support of CTAE Foundation Course Standards and Georgia Standards of Excellence L9-10RST 1-10 and L9-10WHST 1-10:

Georgia Standards of Excellence ELA/Literacy standards have been written specifically for technical subjects and have been adopted as part of the official standards for all CTAE courses.

## Course Standard 2

### AFNR-GHPS-2

**Learns to work safely in the agriculture lab and work sites, demonstrates selected competencies in leadership through the FFA and agricultural industry organizations, and develops plans for a Supervised Agricultural Experience Program (SAEP).**

- 2.1 Explain the role of the Agricultural Education program and the FFA in personal development.
- 2.2 Demonstrate knowledge learned through a SAEP.
- 2.3 Develop leadership and personal development skills through participation in the FFA.
- 2.4 Explore career opportunities in horticulture-plant science through the FFA and Agricultural Education Program.
- 2.5 Explore the professional agricultural organizations associated with the course content.

## Course Standard 3

### AFNR-GHPS-3

**Identify plant parts, growth, and reproduction processes.**

- 3.1 Compare and contrast the three phases of plant life (dormancy, vegetative, reproductive).
- 3.2 Describe the difference between annuals, biennials, and perennials.
- 3.3 Categorize vegetative structures and functions of plant parts (i.e....leaves, stems, roots).
- 3.4 Sketch the sexual reproductive structures of plants and summarize their functions. (e.g., flower, fruit, seeds).
- 3.5 Sketch the sexual reproductive structures of plants and summarize their functions. (e.g., stems, roots).

## Course Standard 4

### AFNR-GHPS-4

**Determine factors that affect plant development and growth.**

- 4.1 Describe the process of photosynthesis and investigate factors affecting photosynthesis in plants.
- 4.2 Describe the process of respiration and investigate factors affecting respiration in plants.
- 4.3 Differentiate between the growth processes of plants (e.g., germination, photosynthesis, transpiration, respiration, osmosis).

## Course Standard 5

### AFNR-GHPS-5

**Discuss the importance of sexual reproduction in plants.**

- 5.1 Examine the importance of plant propagation.
- 5.2 Compare and contrast sexual and asexual propagation.
- 5.3 Describe the factors involved in planting seeds and demonstrate proper planting methods.

## Course Standard 6

### AFNR-GHPS-6

**Discuss the importance of asexual reproduction in plants.**

- 6.1 Describe the various methods of vegetative propagation.
- 6.2 Apply information learned to correctly demonstrate each method of vegetative propagation.

## Course Standard 7

### AFNR-GHPS-7

**Determine the basic principles and uses of soil and plant growth media.**

- 7.1 Identify and sketch soil materials and structure.
- 7.2 Evaluate the components and functions of a good growing media.

## Course Standard 8

### AFNR-GHPS-8

**Identify macro, secondary and micro plant nutrients.**

- 8.1 List and discuss the nutrients needed for plant growth.
- 8.2 Categorize common nutrient deficiency symptoms.
- 8.3 Assess soil pH, analyze plant nutrient availability and discuss methods of pH modification.

## Course Standard 9

### AFNR-GHPS-9

**Explore the use of plant fertilizers and proper fertilizing methods.**

- 9.1 Identify the components of a complete plant fertilizer.
- 9.2 Analyze the difference between organic and inorganic fertilizers.
- 9.3 Demonstrate proper technique for applying water soluble and granular fertilizers.
- 9.4 Calculate accurate fertilizer ratios.

## Course Standard 10

### AFNR-GHPS-10

**Evaluate the damage caused to plants by insects, weeds, diseases, and physiological disorders.**

- 10.1 Identify common insects, weeds, diseases and physiological disorders.
- 10.2 Diagram the external structure of an insect.
- 10.3 Illustrate the complete and incomplete life cycles of insects.
- 10.4 Describe the damage inflicted by insects and weeds.
- 10.5 Describe common plant diseases and compare and contrast solution methods.
- 10.6 Identify the proper methods of controlling pests.

## Course Standard 11

### AFNR-GHPS-11

**Compare and contrast the use of various plant growing containers.**

- 11.1 Describe the containers used in plant production.
- 11.2 Analyze the advantages and disadvantages of each type of plant growing container.

## Course Standard 12

### AFNR-GHPS-12

**Describe various plant irrigation methods.**

- 12.1 Explain the different types of watering methods for plants.
- 12.2 Compare and contrast the advantages and disadvantages of each type of watering system.

## Course Standard 13

### **AFNR-GHPS-13**

#### **Explore plant science and horticulture careers and opportunities.**

- 13.1 Exhibit critical thinking and problem solving skills in career planning in various plant science careers.
- 13.2 Analyze skills, education requirements, income, and advantages and disadvantages of careers in the plant science industry.