**Course Information**

**Division**  
Science

**Course Number**  
AGR 230

**Title**  
Gardening and Landscaping

**Credits**  
3

**Developed by**  
Christopher Jones

**Lecture/Lab Ratio**  
3 Lecture/0 Lab

**Transfer Status**

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**Activity Course**  
No

**CIP Code**  
01.0300

**Assessment Mode**  
Pre/Post Test (20 Questions/100 Points)

**Semester Taught**  
Spring

**GE Category**  
None

**Separate Lab**  
No

**Awareness Course**  
No

**Intensive Writing Course**  
No

**Diversity and Inclusion Course**  
No

**Prerequisites**

None

**Educational Value**

The course is intended to be of general interest and for personal development of citizens of the community and full-time EAC students.

**Description**

Students will learn the basic principles of gardening and landscaping in a desert and semi-arid environment. Conventional and organic gardening principles and practices will be taught. Successful completion of this course will fulfill the training requirements for the University of Arizona Cooperative Extension Master Gardener Program.

**Supplies**

None
Competencies and Performance Standards

1. Identify basic botany concepts.

   **Learning objectives**
   
   What you will learn as you master the competency:
   
   a. Describe the concepts of basic botany.
   b. Explore plant growth and development.
   c. Identify morphological features of plant parts.

   **Performance Standards**
   
   Competence will be demonstrated:
   
   o on the midterm, final, and posttest
   
   Criteria - Performance will be satisfactory when:
   
   o learner describes the concepts of basic botany
   o learner demonstrates knowledge of how plants grow and develop
   o learner demonstrates knowledge of successfully identifies plant parts and their functions

2. Identify and explain different soils, fertilizer, and compost.

   **Learning objectives**
   
   What you will learn as you master the competency:
   
   a. Explain the basics of soil physical and chemical components and how they relate to gardening and landscaping in an arid environment.
   b. Explain the relationship between the proper use of fertilizers and plant nutrition.
   c. Explain the major components and process of making compost.

   **Performance Standards**
   
   Competence will be demonstrated:
   
   o on quantifications of specific soil chemical and physical characteristics
   o on the midterm, final, and posttest
   
   Criteria - Performance will be satisfactory when:
   
   o learner explains the basics of soil physical and chemical components and how they relate to gardening and landscaping
   o learner explains the relationship between fertilizer and plant nutrition
   o learner explains the benefits of compost and the process of making compost

3. Identify plant physiology.

   **Learning objectives**
   
   What you will learn as you master the competency:
   
   a. Demonstrate and appreciate the importance of plants in our ecological systems.
   b. Demonstrate and explore photosynthesis.
   c. Demonstrate and explore respiration and water relations.
   d. Demonstrate and explore mineral nutrition.
   e. Demonstrate and explore hormones involved in pant growth regulation.
**Performance Standards**

**Competence will be demonstrated:**
- on the midterm, final, and posttest

**Criteria - Performance will be satisfactory when:**
- learner demonstrates knowledge of photosynthesis
- learner demonstrates knowledge of respiration and water relations
- learner demonstrates knowledge of mineral nutrition
- learner demonstrates knowledge of hormones involved in plant growth regulation

4. **Identify best irrigation practices in an arid environment.**

**Learning objectives**

*What you will learn as you master the competency:*

a. List factors to consider when designing an irrigation system.

b. Define evapotranspiration (ET) and identify environmental conditions that increase or decrease ET.

c. Describe common irrigation systems used for horticultural and landscape applications.

d. Describe proper irrigation system maintenance.

**Performance Standards**

*You will demonstrate your competence:*
- on the midterm, final, and posttest

*Your performance will be successful when:*
- learner lists factors to consider when designing an irrigation system
- learner defines evapotranspiration and how it affects seasonal plant moisture requirements and water loss
- learner describes common irrigation systems and benefits of low volume irrigation systems
- learner describes knowledge of proper irrigation systems maintenance practices

5. **Identify concepts in vegetable and herb gardening.**

**Learning objectives**

*What you will learn as you master the competency:*

a. Describe planning, planting, growing, and maintaining home vegetable and herb gardens.

b. Describe harvesting and utilization of vegetables grown in home gardens.

**Performance Standards**

*You will demonstrate your competence:*
- in the development of an individual project
- on the midterm, final, and posttest

*Your performance will be successful when:*
- learner describes planning, planting, growing, and irrigation methods in vegetable and herb gardening
- learner describes harvesting and utilization of vegetables grown in home gardens
6. **Integrate knowledge of fruit production.**

   **Learning objectives**
   
   What you will learn as you master the competency:
   
   a. Discuss various cultivars and varieties of fruit trees best suited for the local community.
   
   b. Describe various aspects of pruning, fertilizing, irrigating, and caring for fruit trees.

   **Performance Standards**
   
   You will demonstrate your competence:
   
   o on the midterm, final, and posttest
   
   Your performance will be successful when:
   
   o learner discusses various cultivars and varieties of fruit trees best suited for the local community
   
   o learner describes various aspects of pruning, fertilizing, irrigating, and caring for fruit trees

7. **Integrate knowledge of plant pruning.**

   **Learning objectives**
   
   What you will learn as you master the competency:
   
   a. Describe correct principles for pruning shade and fruit trees, shrubs, and ornamental plants.
   
   b. Describe correct methods of caring for pruned plants.

   **Performance Standards**
   
   You will demonstrate your competence:
   
   o on the midterm, final, and posttest
   
   Your performance will be successful when:
   
   o learner describes correct principles for pruning shade and fruit trees, shrubs, and ornamental plants
   
   o learner describes correct methods for caring for pruned plants

8. **Integrate knowledge of entomology.**

   **Learning objectives**
   
   What you will learn as you master the competency:
   
   a. Discuss the basics of insect classification, anatomy, and lifecycles.
   
   b. Describe tools and steps to diagnose insect pest problems.
   
   c. Explain the principles of integrated pest management in home, garden, and landscape settings.

   **Performance Standards**
   
   You will demonstrate your competence:
   
   o on the midterm, final, and posttest
   
   Your performance will be successful when:
   
   o learner discusses the basics of insect classification, anatomy, and lifecycles
   
   o learner describes tools and steps to diagnose insect pest problems
   
   o learner explains the principles of integrated pest management in home, garden, and landscape settings
   **Learning objectives**
   
   *What you will learn as you master the competency:*
   
   a. Describe damage caused by both living and non-living plant pathogens.
   b. Identify potential plant problems.
   c. Describe ways to control causal agents.

   **Performance Standards**
   
   *You will demonstrate your competence:*
   
   - on the midterm, final, and posttest

   *Your performance will be successful when:*
   
   - learner describes damage caused by both living and non-living plant pathogens
   - learner identifies potential plant problems
   - learner describes ways to control causal agents

10. Diagnose vertebrate pest problems.
    **Learning objectives**
    
    *What you will learn as you master the competency:*
    
    a. Determine how to identify when an animal becomes a pest.
    b. Explore common vertebrate pests affecting gardens and landscapes.
    c. Describe conditions likely to favor the increase of vertebrate pest populations.
    d. Integrate the most suitable and effective control methods for a specific vertebrate pest problem.

    **Performance Standards**
    
    *You will demonstrate your competence:*
    
    - on the midterm, final, and posttest

    *Your performance will be successful when:*
    
    - learner determines how to identify when an animal becomes a pest
    - learner explores common vertebrate pests affecting gardens and landscapes
    - learner describes conditions likely to favor the increase of vertebrate pest populations
    - learner integrates the most suitable and effective control methods for a specific vertebrate pest problem

11. Describe integrated weed management principles.
    **Learning objectives**
    
    *What you will learn as you master the competency:*
    
    a. Describe why a plant might be considered a weed, or defined as a noxious weed.
    b. Describe key classifications of weed plants, such as monocot versus dicot, and annual, biennial, and perennial life cycles.
    c. Describe different tactics used to control or manage weeds.
    d. Define preemergence, contact and systemic herbicides, and describe how they control weeds.
Performance Standards
You will demonstrate your competence:
- on the midterm, final, and posttest
Your performance will be successful when:
- learner describes why a plant might be considered a weed, or defined as a noxious weed
- learner describes key classifications of weed plants, such as monocot versus dicot, and annual, biennial and perennial life cycles
- learner describes different tactics used to control or manage weeds
- learner describes preemergence, contact and systemic herbicides, and describe how they control weeds
- learner describes safe use and handling of pesticides, including understanding herbicide toxicity labels

12. Describe the use and care of low water use ornamental plant basic landscape design.
Learning objectives
What you will learn as you master the competency:
- Describe the proper selection of low water use landscape plants best suited for the local community.
- Explore the basic principles of landscape design including using ornamental plants and landscape elements.
Performance Standards
You will demonstrate your competence:
- on the midterm, final, and posttest
- on the development of a plan for an ornamental garden
Your performance will be successful when:
- learner describes the proper selection of low water use landscape plants best suited for the local community
- learner explores the basic principles of landscape design including using ornamental plants and landscape elements

13. Integrate firewise landscape principles.
Learning objectives
What you will learn as you master the competency:
- Describe the home ignition zones and appropriate use of vegetation, building materials, and landscaping to make a home safer during a wildfire.
- Integrate firewise concepts with the gardening, pruning, low water use plants, irrigation, and landscaping principles learned in this course.
Performance Standards
You will demonstrate your competence:
- on the midterm, final, and posttest
Your performance will be successful when:
- learner describes home ignition zones and appropriate use of vegetation, building materials, and landscaping to make a home safer during a wildfire
- learner integrates firewise concepts with the gardening, pruning, low water use plants,
irrigation, and landscaping principles learned in this course


Learning objectives
What you will learn as you master the competency:

a. Describe the use of sexual (seeds) plant propagation.

b. Describe the use of asexual (rooting, cuttings, bulbs, layering, budding, and grafting) plant propagation.

Performance Standards
You will demonstrate your competence:

- on the midterm, final, and posttest

Your performance will be successful when:

- learner describes the use of sexual (seeds) plant propagation
- learner describes the use of asexual (rooting, cuttings, bulbs, layering, budding, and grafting) plant propagation

Types of Instruction

Lectures
Videos/Slides
Demonstrations
Guest Speakers
Specialty Fieldtrips
A minimum of one Field Trip

Grading Information

Grading Rationale

Students will be required to sign a form the first-class period stating if they are taking the course for a Pass/Fail grade or a letter grade for transfer credit.

A pre-test will be given during the first class and a post-test during the last class. A mid-term exam will be given near the 45th day of classes and a final exam at the end of the course. Each exam is take-home. These 2 exams will each be worth 50% of the grade. Any student who does not miss more than three classes will receive at least a passing grade regardless of scores on the exams.

Note: Withdrawal before the end of the registration period will result in the course not showing on your record. If a student stops attending and to avoid receiving an F, withdrawal must be made by the official withdrawal date, which is normally the last day before Final Exam week. WITHDRAWING IS THE STUDENT'S RESPONSIBILITY, NOT THE INSTRUCTOR'S.
Grading Scale

A  90-100%
B  80-89%
C  70-79%
D  60-69%
F  59% and below

Pass Above 70% or completion of all exams (regardless of the scores) and not missing more than 3 classes.
Fail  Below 70% or failure to complete all exams.