HORT 82 Course Outline as of Spring 2016

CATALOG INFORMATION

Dept and Nbr: HORT 82 Title: INTRO TO ARBORICULTURE
Full Title: Introduction to Arboriculture
Last Reviewed: 3/7/2011

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	3.00	17.5	Lecture Scheduled	52.50
Minimum	3.00	Lab Scheduled	0	8	Lab Scheduled	0
		Contact DHR	0		Contact DHR	0
		Contact Total	3.00		Contact Total	52.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 105.00 Total Student Learning Hours: 157.50

Title 5 Category:	AA Degree Applicable
Grading:	Grade or P/NP
Repeatability:	00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:	
Formerly:	AG 97

Catalog Description:
Ecological and sustainable approaches to the selection, planting, establishment and maintenance of trees and woody plants in the landscape. Includes sections on tree structure and function, environmental factors affecting plant growth, basic soil science, managing nutritional needs, water management, pruning for structural development and safety, current pruning standards, hazard tree assessment and risk management, diagnosing pest problems and health care management emphasizing non-pesticide methods, and basic concepts of tree appraisal. Field lectures on the SRJC campus and other locations are also included.

Prerequisites/Corequisites:

Recommended Preparation:
Eligibility for ENGL 100 or ESL 100; AND Course Completion of HORT 50.1 or AGRI 20 or BOTANY 10

Limits on Enrollment:

Schedule of Classes Information:
Description: Ecological and sustainable approaches to the selection, planting, establishment and

maintenance of trees and woody plants in the landscape. Includes sections on tree structure and function, environmental factors affecting plant growth, basic soil science, managing nutritional needs, water management, pruning for structural development and safety, current pruning standards, hazard tree assessment and risk management, diagnosing pest problems and health care management emphasizing non-pesticide methods, and basic concepts of tree appraisal. Field lectures on the SRJC campus and other locations are also included. (Grade or P/NP)
Prerequisites/Corequisites:
Recommended: Eligibility for ENGL 100 or ESL 100; AND Course Completion of HORT 50.1 or AGRI 20 or BOTANY 10
Limits on Enrollment:
Transfer Credit:
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

AS Degree:	**Area**	Effective:	Inactive:
CSU GE:	**Transfer Area**	Effective:	Inactive:
IGETC:	**Transfer Area**	Effective:	Inactive:

CSU Transfer:	Effective:	Inactive:
UC Transfer:	Effective:	Inactive:

CID:

Certificate/Major Applicable:
Certificate Applicable Course

COURSE CONTENT

Outcomes and Objectives:
Upon successful completion of this course the student will be able to:
1. Select quality trees and other woody plants for optimum performance in the landscape.
2. Evaluate the planting site to determine how plants will respond and/or how to mitigate site conditions.
3. Prepare a site to improve plant performance and ease of maintenance.
4. Recommend proper use of staking or guying for newly planted trees.
5. Compare and contrast planting and transplanting methods for a variety of trees and shrubs.
6. Determine nutrient needs and toxicity problems for woody plants and recommend treatment to correct nutrient deficiencies.
7. Evaluate factors that affect water use by plants and determine minimum water needs and methods of applying water.
8. Manage soil conditions for favorable plant growth.
9. Describe basic concepts of pruning and current pruning standards.
10. Evaluate tree structure and response to pruning.
11. Describe the role of growth regulating hormones in maintaining a favorable root to shoot ratio.
12. Determine which plant growth 'stimulants' and soil applied amendments work and which do not.
13. Evaluate environmental and biological factors that increase susceptibility to insect and

disease pests and influence tree failure.
14. Describe structural defects that increase hazard tree potential.
15. Discuss the methodology and current technology for assessing and mitigating tree hazard potential.
16. Decide on best management practices for maintaining landscape trees and plants.
17. Summarize concepts of fire-safe landscaping.

Topics and Scope:

I. Introduction to arboriculture
 A. Definition
 B. Benefits
  1. Improved health
  2. Safety
  3. Longevity
  4. Aesthetics
  5. Reduces maintenance costs
II. Role of trees in the environment
  A. Sociological
  B. Psychological and human health
  C. Environmental Benefits
III. Plants
  A. Tree structure and function
  B. Plant distribution and ecology
  C. Plant selection
    1. Assessing environmental conditions
    2. Types of plant material
    3. Selecting quality plant material
    4. Planting specifications
IV. Planting Site
 A. Climate
 B. Soil
 C. Slope
 D. Aspect
 E. Topography
 F. Existing plants
 G. Site preparation
V. Planting and Transplanting
 A. Container grown
 B. Balled and burlap
 C. Bare root
 D. Boxed specimens
 E. Moving large trees
 F. Special planting situations
 G. Training, staking and support methods
VI. Nutrient Management
 A. Relationship among soil characteristics
 B. Roots, mineral elements, and plant physiology
 C. Soil analysis
 D. Role of soil microorganisms
    1. Roots
    2. Micorrhizae

E. Nutrition and soil tilth
F. Importance of organic matter
G. Importance of mulching

VII. Soil and Sustainable Soil Management
A. Mitigating compacted soil
B. Mulching and vertical mulching
C. Bare soil
D. Use of the 'tree spade'
E. Soil needle

VIII. Managing Efficient Water Use
A. Estimating minimal water needs
B. Soil characteristics and water availability
C. Application methods
D. Salinity and reclaimed water
E. Improving soil conditions to increase water availability
1. Antitranspirants
2. Wetting agents
3. Hydrogels
4. Soil conditioners

IX. Plant competition
A. Turf and other ground covers
B. Allelopathy

X. Pruning
A. General concepts
B. Response and negative impacts
C. Destructive pruning practices
D. Current standards
E. Types of pruning

XI. Sustainable Control Practices
A. To manage plant growth
B. Root initiation
C. Shorten shoot growth
D. Manage sprouting
E. Herbicides
F. Manage invasive roots in sewer pipes

XII. Hazard tree management
A. Ecological and environmental factors that increase potential for failure
1. Root disease
2. Heart rots
3. Saprots
4. Structural defects

XIII. Mitigating hazard potential
A. Removal
B. Cabling
C. Bracing
D. Propping
E. Crown reduction

XIV. Diagnosing Plant Problems
A. Abiotic factors
B. Biotic factors
1. Insects

2. Diseases
XV. Common diseases and insect pests
A. Common diseases
1.Leaf
2. Root
3. Decay causing pathogens
4. Cankers
5. Canker-rots
B. Common causes
1. Fungi
2. Bacteria
3. Mistletoe
C. Common insect pests
1. Sap feeders
2. Defoliators
3. Bark beetles and borers
4. Gall-formers
D. Review of the common tree's pests
1. Oaks
2. Pines
XVI. Integrated pest management
A. Tree-health based practices to improve natural pest resistance
1. Minimize stress
2. Encourage normal growth
B. Review of pest management methods
XVII. Best management practices for maintaining landscape trees and plants
XVIII. Concepts of fire-safe landscaping

Assignment:

May include:
1. 3-5 page research paper on a topic related to hazard tree management or maintenance problems and their treatment.
2. 20-30 pages of reading in assigned text/week.
3. Worksheets related to plant selection, site preparation, pruning, and diagnosing plant problems.
4. Quizzes, mid-term, and final exam.

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

Worksheets and research paper.	Writing 20 - 30%

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Worksheets: plant select; site prep; pruning; diagrams	Problem solving 30 - 40%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

None	Skill Demonstrations 0 - 0%

Exams: All forms of formal testing, other than skill performance exams.

Quizzes, mid-term, and final exam.	Exams 20 - 40%

Other: Includes any assessment tools that do not logically fit into the above categories.

Attendance and participation.	Other Category 0 - 10%

Representative Textbooks and Materials:
Harris, Richard W., Arboriculture: Integrated Management of Landscape Trees, Shrubs, and Vines. 4th ed. Prentice Hall, Inc. 2003 (Classic)
Hartman, J., Pirone, T. Pirone's Tree Maintenance, 7th ed. Prentice Hall, 2000. (Classic)
Instructor prepared materials