

*Lecture Contact Hours: 16-18; Outside-of-Class Hours: 32-36;
Laboratory Contact Hours: 48-54; Outside-of-Class Hours: 0;
Total Student Learning Hours: 96-108*

CUYAMACA COLLEGE
COURSE OUTLINE OF RECORD

Ornamental Horticulture 250 – Landscape Water Management

1 hour lecture, 1 unit
3 hours laboratory, 1 unit
Total units: 2 units

Catalog Description

Water management principles and practices for urban landscapes including water audit methods and certification, irrigation scheduling, water budgets, water use monitoring, and laws and regulations pertaining to urban landscape irrigation and runoff.

Prerequisite

None

Course Content

- 1) Landscape water audits
 - a. Catch-can tests procedures
 - b. Data collection and analysis
 - c. Requirements for a EPA recognized landscape irrigation auditor certification
- 2) Irrigation system performance review
 - a. Common problems with established landscape irrigation systems
 - b. Prioritization of problems related to cost/water savings return in investment
 - c. Potential remedies
 - d. Report writing techniques
- 3) Irrigation watering schedules
 - a. Formulas for schedule calculations
 - b. Use of computer software to aid in schedule calculations
 - c. Field observations and schedule adjustments
- 4) Landscape water budgets
 - a. Formulas for budget calculations
 - b. Use of computer software to aid in schedule calculations and to monitor site water use
- 5) Local landscape water ordinances
 - a. Water rationing and conservation-related laws
 - b. Laws related to runoff and stormwater pollution

Course Objectives

Students will be able to:

- 1) Perform landscape irrigation audits on small and large landscapes using the Irrigation Association's Certified Landscape Irrigation Auditor guidelines.
- 2) Evaluate landscape irrigation system performance and deficiencies and make recommendations for improving irrigation system efficiency.
- 3) Calculate landscape watering schedules based on California Irrigation Management Information System (CIMIS) data.
- 4) Calculate estimated landscape water budgets using evapotranspiration, plant factors, and irrigation efficiency.
- 5) Use computer software to produce schedules, budgets, and monitor water use.
- 6) Describe various local ordinances pertaining to landscape water use and water runoff pollution.

Method of Evaluation

A grading system will be established by the instructor and implemented uniformly. Grades will be based on demonstrated proficiency in subject matter determined by multiple measurements for evaluation, one of which must be essay exams, skills demonstration or, where appropriate, the symbol system.

- 1) Quizzes and exams that measure students' ability to compare system performance with accepted industry standards and make recommendations for improving system efficiency.
- 2) Exercises and projects that measure students' ability to perform landscape water audits and to use the audit data to establish watering schedules based on CIMIS as well as calculate the estimated water usage using computer software.

Special Materials Required of Student

None

Minimum Instructional Facilities

Access to sports fields and landscape areas for catch-can tests, computer lab

Method of Instruction

Lecture and demonstration

Out-of-Class Assignments

- 1) **Reading:** lecture notes; *Qualified Water Efficient Landscaper Reference Manual*, course materials; articles; content on websites.
- 2) **Writing:** assignment drafts; summaries; water savings recommendations; presentations.
- 3) **Other:** field exercises including visits to turf areas to evaluate irrigation distribution uniformity.

Texts and References

- 1) Required (representative example): *Qualified Water Efficient Landscaper Reference Manual*. Sonoma-Marín Water Savings Partnership, 2018 (classic).
- 2) Supplemental: None

Student Learning Outcomes

Upon successful completion of this course, students will be able to:

- 1) Perform landscape irrigation audits and calculate base irrigation schedules.
- 2) Create landscape water budgets for the purpose of landscape water management.
- 3) Apply the basic principles of irrigation system performance surveys.