

CUYAMACA COLLEGE
COURSE OUTLINE OF RECORD

ORNAMENTAL HORTICULTURE 255 – SUSTAINABLE URBAN LANDSCAPE PRINCIPLES AND PRACTICES

2 hours lecture, 2 units

Catalog Description

Principles and practices of sustainable landscape design, construction and maintenance. The course provides a basic understanding of the holistic function of the landscape in the context of sustainability. Using a comprehensive systems approach, learn to investigate, analyze, and apply sustainable environmental practices to a project site. Practice communicating ideas, research, and solutions, creatively and confidently via oral presentations.

Recommended Preparation

“C” grade or higher or “Pass” in OH 120, 170 or equivalent

Entrance Skills

Without the following skills, competencies and/or knowledge, students entering this course will be highly unlikely to succeed:

- 1) Identify and describe the function of the following plant tissues: xylem, phloem, vascular cambium.
- 2) Describe the tissues and their functions in the following plant organs: leaves, roots, stems, and fruit.
- 3) Describe soil textural class, soil horizons and common soil series.
- 4) Compare and contrast the effect on plants from high and low levels of pH, soluble salts and sodium in soils.
- 5) Describe correction or adaptation to soil conditions including alkaline and acid soils, saline soils, sodic soils, calcareous soils.
- 6) Describe soil water and plant relationships including soil moisture measurement.
- 7) Identify the most common plant nutrient deficiency and toxicity symptoms.
- 8) Correctly identify the botanical and common names of 30 out of a possible 125 trees and shrubs.
- 9) Describe the important cultural characteristics of 30 out of a possible 125 trees and shrubs.

Course Content

- 1) Introduction to Sustainable Urban Landscape Principles
 - a. Overall principles of sustainability
 - b. Sustainable site design
 - c. Sustainable development and
 - d. Sustainable landscape management
- 2) Landscape Industry Sustainable Practices Standards
 - a. Leadership in Energy and Environmental Design (LEED)
 - b. The Sustainable Sites Initiative (SSI)
- 3) Site Assessment, Inventory and Analysis
 - a. Traditional versus sustainable site design and development
 - b. Climate, microclimate and energy
 - c. Function and aesthetic value
 - d. Components of the physical site and their relation to sustainable landscapes
- 4) Environmental Issues and Regulations
 - a. Environmental Protection Agency (EPA)
 - b. Clean Water Act (CWA)
 - c. National Pollutant Discharge Elimination System (NPDES)

- d. Storm Water Pollution Prevention Plan (SWPPP)
 - e. Low Impact Development (LID)
 - f. Water Conservation in Landscaping Act (Assembly Bill 1881)
- 5) Sustainable Site Solutions/Strategies
- a. Opportunities and Constraints
 - b. Water, soils, vegetation, wildlife, fire and materials and resources
 - c. Human health and well-being
 - d. Maintenance and Management
- 6) Project development and presentation

Course Objectives

Students will be able to:

- 1) Differentiate between sustainable urban landscape practices and self-sustaining landscapes.
- 2) Compare and contrast methods and materials that would be used in a sustainable landscape design and construction with those used in the traditional urban landscape.
- 3) Describe the proper use of permeable materials, stormwater catchment and bioswales in stormwater retention and reuse.
- 4) Compare and contrast landscape maintenance practices that contribute to the long term viability of sustainable urban landscapes.
- 5) Describe the regulatory requirements currently in place pertaining to irrigation, stormwater, green waste and landscape design.

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:
 - a. Compare and contrast sustainable, non-sustainable, and self-sustaining landscapes including elements of design, construction materials and maintenance practices.
 - b. Prepare a plan for the reduction of, or remediation of, stormwater discharge including catchment, bioswales and water reuse.
 - c. Recommend practices that lead to long term sustainable landscapes.
- 2) Exercises and projects that demonstrate students' ability to establish design, installation and maintenance guidelines which follow principles of sustainable landscape design.

Special Materials Required of Student

None

Minimum Instructional Facilities

Smart classroom

Method of Instruction

Lecture and demonstration

Out-of-Class Assignments

- 1) Reading assignments
- 2) Landscape surveys and other observations
- 3) Written reports

Texts and References

- 1) Required (representative example): Cook, Thomas and Ann Marie Vanderzanden. *Sustainable Landscape Management*. Wiley, 2012.
- 2) Supplemental: None

Student Learning Outcomes

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

- 1) Identify practices that contribute to sustainability in landscape design, installation and maintenance.
- 2) Recommend appropriate changes to horticultural practices to improve their sustainability.