

Environmental Horticulture

Degrees, Awards and Certificates

Associate in Science Degree, Environmental Horticulture, with four emphases:

- Ecological Restoration and Management
- Landscape Contracting C-27 License
- Landscape Design
- Nursery and Greenhouse Technology

Certificate of Achievement, Environmental Horticulture Skills Competency Award, Landscape Operations Skills Competency Award, Sustainable Horticulture

Program Description

The Environmental Horticulture Program teaches the basic skills and provides state-of-the-art information required to develop a strong foundation for the ornamental horticulture and ecological restoration industries. The program encourages professional standards, a strong work ethic and environmentally sound management practices.

Horticulture industry professionals from throughout the community serve as members of the college's Environmental Horticulture Advisory Committee. These "hands-on" professionals provide guidance, expertise and leadership in enhancing the program's response to community and industry needs. They meet yearly with program staff members, college administrators and student representatives to review program goals and objectives. Course offerings and content have been determined through this participation and are geared to meet the needs of the landscape, ornamental horticulture and ecological restoration trades.

On the college's East Campus, practical lab classes utilize two outdoor classroom gardens, the SBCC Lifescape and Chumash Point Ethnobotanical Preserve. The gardens are also the site of the nursery/greenhouse unit.

The Environmental Horticulture (EH) Program is designed to provide the student with the necessary skills at the apprentice level to begin work in a wide range of landscape trades. There are three vocational approaches within the Environmental Horticulture program: (1) the one-semester Skills Competency Award approach; (2) the Certificate of Achievement approach, where the certificate is awarded after the one-year (two-semester) format is successfully

completed; and (3) the certificate can lead to any one of the four two-year A.S. Degree options in:

- a. Landscape Contracting, C-27 License (satisfying one or more years of State requirements)
- b. Environmental Landscape Design
- c. Nursery and Greenhouse Technology
- d. Ecological Restoration and Management

The program cannot guarantee job placement; however, many landscape industry employers, in search of energetic and skilled apprentices, contact the college to request referral of program graduates. The EH Program Skills Competency Award, EH Certificate and Certified Green Gardener, and Associate Degrees often provide expanding job opportunities.

Program Student Learning Outcomes

Environmental Horticulture Degree

1. Identify common native and ornamental landscape plants.
2. Conduct a landscape assessment for ecological and economic sustainability.
3. Trouble-shoot pest, water, soil and location problems of landscape plants and plantings.
4. Provide recommendations for enhancing health of landscape trees, shrubs, other plants and soils.
5. Describe and implement both conventional and organic methods of landscape maintenance and care.
6. Design, plan and install basic irrigation systems.
7. Design, plan and install basic hardscape elements.
8. Utilize basic propagation methods to produce landscape plants.
9. Demonstrate a strong work and personal ethic through care of horticultural tools and facilities, and through care of personal health during horticultural practices.
10. Experience supervised, hands-on horticultural work.
11. Demonstrate proficiency in native plant ecology and restoration.
12. Demonstrate basic skills in landscape design.

Environmental Horticulture Certificate

1. Identify common native and ornamental landscape plants.
2. Conduct a landscape assessment for ecological and economic sustainability.
3. Trouble-shoot pest, water, soil and location problems of landscape plants and plantings.
4. Provide recommendations for enhancing health of landscape trees, shrubs, other plants and soils.
5. Describe and implement both conventional and organic methods of landscape maintenance and care.

6. Design, plan and install basic irrigation systems.
7. Design, plan and install basic hardscape elements.
8. Utilize basic propagation methods to produce landscape plants.
9. Demonstrate a strong work and personal ethic through care of horticultural tools and facilities and through care of personal health during horticultural practices.
10. Experience supervised hands-on horticultural work.

Faculty and Office

Michael Gonella, *Chair* (A-162A, ext. 3042)

Alan Price, *Dean* (A-218 ext. 3044)

AS Degree: Environmental Horticulture

Emphasis: Landscape Contracting C-27 License

Department Requirements (40-44 units)

EH 101 — Plant Identification and Culture	3
EH 102 — Soils and Plant Nutrients	3
EH 103 — Irrigation and Garden Waterworks	3
EH 104 — Landscape Maintenance.....	3
EH 105 — Landscape Construction	3
EH 106 — Greenhouse/Nurs Oper/Plant Prop/Rec	3
EH 110 — Introduction to Horticulture	3
EH 201 — Arboriculture.....	3
EH 290 — Work Experience in Environ. Horticulture	2-4
EH 290 — Work Experience in Environ. Horticulture	2-4

An additional 12 units of controlled electives are required. See counselor for list of required courses for each option.

The Associate Degree will be awarded upon completion of both department *and* college requirements.

AS Degree: Environmental Horticulture

Emphasis: Landscape Design

Department Requirements (42-46 units)

DRFT 126 — Landscape Drafting I <i>or</i>	
EH 126 — Landscape Drafting I.....	3
EH 101 — Plant Identification and Culture	3
EH 103 — Irrigation and Garden Waterworks	3
EH 104 — Landscape Maintenance.....	3
EH 105 — Landscape Construction	3

EH 109 — Permaculture Design	5
EH 110 — Introduction to Horticulture	3
EH 202 — Residential Landscape Design	3
EH 290 — Work Experience in Environ. Horticulture	2-4
EH 290 — Work Experience in Environ. Horticulture	2-4

An additional 12 units of controlled electives are required. See counselor for list of required courses for each option. The Associate Degree will be awarded upon completion of both department and college requirements.

AS Degree: Environmental Horticulture

Emphasis: Nursery and Greenhouse Technology

Department Requirements (40-44 units)

EH 101 — Plant Identification and Culture	3
EH 102 — Soil and Plant Nutrients	3
EH 103 — Irrigation and Garden Waterworks	3
EH 104 — Landscape Maintenance.....	3
EH 105 — Landscape Construction	3
EH 106 — Greenhouse/Nurs Oper/Plant Prop/Rec	3
EH 110 — Introduction to Horticulture	3
EH 112 — Ecological Restoration I <i>or</i>	
EH 113 — Ecological Restoration II	3
EH 290 — Work Experience in Environ. Horticulture	2-4
EH 290 — Work Experience in Environ. Horticulture	2-4

An additional 12 units of controlled electives are required. See counselor for list of required courses for each option.

The Associate Degree will be awarded upon completion of both department *and* college requirements.

AS Degree: Environmental Horticulture

Emphasis: Ecological Restoration and Management

Department Requirements (41-44 units)

BIOL 120 — Natural History <i>or</i>	4
BIOL 122 — Ecology	3
BOT 122 — Flowering Plant Identification <i>or</i>	
BOT 123 — Field Botany.....	3
DRFT 126 — Landscape Drafting I <i>or</i>	
EH 126 — Landscape Drafting I.....	3
EH 102 — Soils and Plant Nutrients.....	3
EH 104 — Landscape Maintenance.....	3

EH 109 — Permaculture Design	5
EH 110 — Introduction to Horticulture	3
EH 112 — Ecological Restoration I	3
EH 113 — Ecological Restoration II	3
EH 290 — Work Experience in Horticulture	4
ENVS 110 — Humans and The Biological Environment	3
ENVS 111 — Environmental Field Studies	1
GEOG 171/ERTH 171 — Introduction to Geog Information Systems and Maps	2
<i>Electives (Choose at least one course from the following)</i>	
ERTH 111* — Dynamic Earth-Physical Geology or	3
ERTH 111H* — Dynamic Earth-Physical Geology, Honors	4
GEOG 101/ERTH 141* — Physical Geography	3
GEOG 172/ERTH 172 — GIS: Software Applications	2
*ERTH 111 or 111H will satisfy area A of the SBCC GE requirements if taken with EARTH 111L. EARTH 141/GEOG101 will satisfy area A of the SBCC GE requirements if taken with EARTH 141L/GEOG 101L.	

The Associate Degree will be awarded upon completion of both department *and* college requirements.

**Certificate: Environmental Horticulture
Department Requirements (28-32 units)**

DRFT 126 — Landscape Drafting I or EH 126 — Landscape Drafting I	3
EH 101 — Plant Identification and Culture	3
EH 102 — Soils and Plant Nutrients	3
EH 103 — Irrigation and Garden Waterworks	3
EH 104 — Landscape Maintenance	3
EH 105 — Landscape Construction	3
EH 106 — Greenhouse/Nursery Operations, Plant Propagation and Plant Recognition	3
EH 110 — Introduction to Horticulture	3
EH 290 — Work Experience in Environ. Horticulture	2-4
EH 290 — Work Experience in Environ. Horticulture	2-4

Students must complete all department requirements with a cumulative GPA of 2.0 or better. *Candidates for a Skills Competency Award are required to complete at least 20% of the department requirements through SBCC.*

Certificate Requirements

Upon successful completion of program requirements, as outlined above, SBCC awards the student a Certificate of Achievement in Environmental Horticulture. It is recognized by landscape industries throughout the region as verification of the graduate's achievement in acquiring requisite horticulture skills. Students may start the program in either the Fall or Spring Semester.

**Skills Competency Award:
Sustainable Horticulture**

Department Requirements (12 units)

Fall

EH 101 — Plant Identification and Culture	3
EH 103 — Irrigation and Garden Waterworks	3
EH 104 — Landscape Maintenance	3
EH 110 — Introduction to Horticulture	3

Optional

EH 290 — Work Experience in Environ. Horticulture	2-4
<i>Students must achieve a grade of "C" or higher or credit in all courses.</i>	

**Skills Competency Award:
Landscape Operations**

Department Requirements (12 units)

Spring

EH 102 — Soils and Plant Nutrients	3
EH 105 — Landscape Construction	3
EH 106 — Greenhouse/Nursery Operations: Plant Propagation and Plant Recognition	3
EH 110 — Introduction to Horticulture	3

Optional

EH 290 — Work Experience in Environ. Horticulture	1-4
<i>Students must complete the above courses with the grade of C or higher or pass in all courses. Candidates for a Skills Competency Award are required to complete at least 20% of the department requirements through SBCC..</i>	

College Requirements

For complete information, see "Graduation Requirements" in the *Catalog Index*.

Planning a Program of Study

Some students work on campus. Others work in the private landscape contracting industry (under the supervision of licensed contractors), in the nursery/greenhouse industry, or in the landscape or maintenance field. Still other program participants work as free-lancers in the various environmental horticulture specialties, including habitat management.

EH 290, Work Experience in Environmental Horticulture, is considered a vital aspect of the program—generating two to four units of credit each semester for enrollees. The college, the student and job supervisor work together to develop meaningful work experience situations and projects. It is the responsibility of the individual student to acquire such experience under the program.

One-year Certificate students also need to take DRFT 126 — Landscape Drafting I and EH 110 — Introduction to Horticulture, to earn the State-issued Certificate.

Units earned under the one-year Certificate of Achievement program are applied toward the Associate Degree; many articulate toward the Horticulture degree program offered by California Polytechnic State University.

Program Cost and Outcome

For planning purposes, the webpage below provides information on the cost of attendance, program length (assuming a student attends full-time), financing options and historical student completion rates:

www.sbcc.edu/financialaid/gainfulemployment/Environmental%20Horticulture.htm

Environmental Horticulture Courses

EH 101 — Plant Identification and Culture (3) — CSU, UC

Hours: 90 (36 lecture, 54 lab)

Designed to acquaint the student with woody ornamental plants and selected accent plants used in the Santa Barbara region. Approximately 150 trees, shrubs, vines and herbaceous ornamentals are presented for identification and close scrutiny.

EH 102 — Soils and Plant Nutrients (3) — CSU

Hours: 90 (36 lecture, 54 lab)

Covers soils as related to sustainable plant care. Emphasis on soil analysis, problem identification, soil remediation, soil enhancement and the soil food web.

EH 103 — Irrigation and Garden Waterworks (3) — CSU

Hours: 90 (36 lecture, 54 lab)

Introduction to the materials and methods used in landscape irrigation system design, maintenance and repair. Trouble-shooting and retrofitting systems for water conservation are also highlighted including drip and underground systems. Simple plan reading, system scheduling and controller use are reviewed.

EH 104 — Landscape Maintenance (3) — CSU

Hours: 90 (36 lecture, 54 lab)

Covers basic landscape maintenance topics emphasizing sustainable methods of enriching soil health, composting, mulching, water-efficient irrigation systems, pruning, fertilization, plant selection, turf management, insect control and weed control. Personal health and safety emphasized. Student groups develop and implement sustainable landscape projects.

EH 105 — Landscape Construction (3) — CSU

Hours: 90 (36 lecture, 54 lab)

Designed to familiarize students with basic landscape construction work, equipment and materials. Explores plan reading, grading, drainage, concrete, masonry, carpentry, electrical and plumbing, as well as C-27 landscape contractor's license requirements, business practices and legalities of this specialty.

EH 106 — Greenhouse/Nursery Operations and Practices, Plant Propagation and Plant Recognition (3) — CSU

Hours: 90 (36 lecture, 54 lab)

Introduces students to the greenhouse/nursery. Plant recognition is required for indoor plants, turf/groundcovers, bedding plants and herbaceous perennials. Greenhouse management includes maintenance, management and structure development.

EH 109 — Permaculture Design (5) — CSU

Hours: 90 lecture

Application of ecological and environmental principles to designing human systems that are locally sustainable and require reduced inputs. The successful student receives Permaculture Design certification, recognized worldwide.

EH 110 — Introduction to Horticulture

(3) — CSU, UC

Hours: 54 lecture

Introduction to central concepts of environmental horticulture, covering horticultural practices and methods, with focus on long-term sustainability and local ecological issues.

EH 112 — Ecological Restoration I

(3) — CSU

Hours: 90 (36 lecture, 54 lab)

Examines the principles and techniques of regional habitat restoration. Class work emphasizes the identification, collection, propagation and care of native plants.

EH 113 — Ecological Restoration II

(3) — CSU

Hours: 90 (36 lecture, 54 lab)

Review of the concepts and implementation of habitat restoration. Santa Barbara region habitats studied include chaparral, coastal sage scrub, oak woodland, and riparian eco-niches. Emphasis on watersheds and riparian restoration. Principles of ecological re-creation and restoration techniques include seed collection, propagation and project evaluation.

EH 126/DRFT 126 — Landscape Drafting I

(3) — CSU

Skills Advisories: Eligibility for ENG 103 Proficiency in MATH 1

Hours: 72 (45 lecture, 27 lab)

Principles of drafting and plan reading required for the landscape architecture and ornamental horticulture fields. Work includes investigating styles and designing and drafting plans, elevations and details.

EH 127/DRFT 127 — Landscape Drafting II

(3) — CSU

Prerequisites: DRFT 126 with a minimum grade of "C" or EH 126

Skills Advisories: Eligibility for ENG 103 Proficiency in MATH 1

Hours: 72 (45 lecture, 27 lab)

Advanced Drafting and plan reading course using manual and computer drafting tools. For landscape architecture and ornamental horticulture fields. Includes site plans, elevations and details.

EH 201 — Arboriculture

(3) — CSU

Hours: 54 lecture

Introduction to the care of woody plants, including trees, shrubs, vines and palms. Covers function, structure, taxonomy, anatomy and physiology of woody plants; the effects of soil, water and fertilizer, pruning, safety, planting, early care, and diagnostics of pests and disease.

EH 202 — Residential Landscape Design

(3) — CSU

Hours: 54 lecture

Foundational course for basic skills in design and implementation of residential landscaping. Theory and practical development of skills and art forms associated with hardscape and softscape elements and plans examined.

EH 203 — Pest Management

(1) — CSU

Hours: 18 lecture

Designed for professionals or others who need to become familiar with sustainable and Integrated Pest Management (IPM) techniques. Helps students prepare for state certification or licensing and satisfy state safety requirements.

EH 204 — Edible Landscaping

(1) — CSU

Hours: 18 lecture

Reviews some 200 edible trees, shrubs, vines and herbaceous perennials and includes their quick identification, care and history.

EH 205 — Ground Covers and Turf

(1) — CSU

Hours: 18 lecture

Explores various turf selections, including sustainable turf substitutes, and various groundcover plants adaptable to Southern California.

EH 206 — Water Efficient Landscapes

(1) — CSU

Hours: 18 lecture

Covers the design and implementation of low-water use landscapes by reviewing water-efficient plant selection, design and issues of water sustainability in landscapes.

EH 207 — Small Scale Food Production

(1) — CSU

Hours: 18 lecture

Explores the natural and sustainable techniques and skills used to produce healthy, organic produce. Soil development composting, mulching, suitable vegetables, fruit trees and herb cultivation covered.

EH 208 — Chumash Landscaping

(1) — CSU

Hours: 18 lecture

Covers design, implementation and sustainable care and maintenance of local native plants of cultural importance to the Chumash people.

EH 209 — California's Diverse Plant Life:

Island Flora

(2) — CSU

Hours: 36 lecture

Fee required. Two 3-day field trips. Overview of California flora, with focus on diverse growing conditions and plant life, including geography, topography and climate and how these factors create diverse flora.

EH 211 — Spring Native Flora Identification

(1) — CSU

Hours: 18 lecture

Examination of the identification and cultivation of native California spring plants. For use in landscaping and restoration.

EH 212 — Summer Native Flora Identification

(1) — CSU

Hours: 18 lecture

Examination of the identification and cultivation of native California summer plants. For use in landscaping and restoration.

EH 213 — History of Gardens

(1) — CSU

Hours: 18 lecture

Introduces the student to four centuries of formal and classic gardens of Europe and the United States, as well as 200 years of Santa Barbara's horticulture heritage. Through visual media, slides, video and site visits, the elements of classic garden design are highlighted.

EH 290 — Work Experience in

Environmental Horticulture

(1-4) — CSU

Limitation on Enrollment: Must be enrolled in Environmental Horticulture Program, taking at least one EH prefix class.

Students attend six evening classes for three hours approximately every three weeks.

Hours: 60-300 lab

Exploration of elements essential to success in the fields of horticulture, including proper work ethic, job searching and job preparation. Outside of class, students work to earn credit. Time sheets are done monthly, supervisor evaluation is required, and a three-way semester contract is developed between the student, the student's supervisor and the instructor.

EH 299 — Independent Study in Environmental Horticulture

(1-4) — CSU

Limitation on Enrollment: Completion of a minimum of 12 units at SBCC, with a 2.5 GPA, and a minimum of 6 units, with a 3.0 GPA within the department.

Hours: 48-192 lab

For complete information, see "Independent Study" in the *Catalog Index*.