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# Environmental Horticulture

The Environmental Horticulture Program teaches the basic skills and provides state-of-the-art information required to develop a strong foundation for a variety of career specialties within the landscaping, ornamental horticulture and the regenerative and restoration industry. 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 habitat management 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.
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**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**

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

**Degrees and Certificates Awarded**

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

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

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

**A.S. Degree: Environmental Horticulture**

Emphasis: Landscape Contracting C-27 License

**Department Requirements (40-44 units)**

EH 101 — Plant Identification & Culture.....	3
EH 102 — Soil & Plant Nutrition & Plant Identification.....	3
EH 103 — Irrigation & 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.

**A.S. Degree: Environmental Horticulture**

Emphasis: Landscape Design

**Department Requirements (41-45 units)**

DRFT 126 — Landscape Drafting I <i>or</i>	
EH 126 — Landscape Drafting I.....	3
EH 101 — Plant Identification & Culture.....	3
EH 103 — Irrigation and Garden Waterworks .....	3
EH 104 — Landscape Maintenance.....	3
EH 105 — Landscape Construction .....	3
EH 109 — Permaculture Design .....	4
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.

**A.S. Degree: Environmental Horticulture**

Emphasis: Nursery and Greenhouse Technology

**Department Requirements (40-44 units)**

EH 101 — Plant Identification & Culture.....3  
 EH 102 — Soil & Plant Nutrition & Plant Identification.....3  
 EH 103 — Irrigation & 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 **or**  
 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.

**A.S. Degree: Environmental Horticulture**

Emphasis: Ecological Restoration and Management

**Department Requirements (40-43 units)**

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

EH 109 — Permaculture Design .....4  
 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 & Biological Environment .....3  
 ENVS 111 — Environmental Field Studies.....1  
 GEOG 171/ERTH 171 — Introduction to  
 Geog Information Systems & Maps.....2  
*Electives (Choose at least one course from the following)*  
 EARTH 111\* — Dynamic Earth-Physical Geology **or** .....3  
 EARTH 111H\* — Dynamic Earth-Physical Geology,  
 Honors .....4  
 GEOG 101/ERTH 141\* — Physical Geography .....3  
 GEOG 172/ERTH 172 — Geographic Information  
 Systems 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.*

**Certificate: Environmental Horticulture**

**Department Requirements (28-32 units)**

DRFT 126 — Landscape Drafting I **or**  
 EH 126 — Landscape Drafting I.....3  
 EH 101 — Plant Identification & Culture.....3  
 EH 102 — Soils and Plant Nutrients & Plant Installation.....3  
 EH 103 — Irrigation & Garden Waterworks.....3  
 EH 104 — Landscape Maintenance .....3  
 EH 105 — Landscape Construction .....3  
 EH 106 — Greenhouse/Nursery Operations,  
 Plant Propagation & 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

## 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 & Culture.....	3
EH 103 — Irrigation & Garden Waterworks.....	3
EH 104 — Landscape Maintenance.....	3
EH 110 — Introduction to Horticulture .....	3

#### Optional:

EH 290 — Work Experience in Environ. Horticulture .....	2-4
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## Skills Competency Award: Landscape Operations

### Department Requirements (12 units)

#### Spring

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

#### Optional:

EH 290 — Work Experience in Environ. Horticulture .....	2-4
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*Students must achieve a grade of "C" or higher or credit in all courses, for all degrees, certificates and skills competency awards.*

## College Requirements

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

## Planning a Program of Study

Most EH lecture classes are now conducted on Monday, Tuesday, Wednesday and Thursday evenings and accompanying EH labs are conducted on Friday afternoons, Saturday mornings and Saturday afternoons. During non-class times, students perform "hands-on" work in the field—on either a paid or volunteer basis under Work Experience.

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 Drafting 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.

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## Course Descriptions

### **EH 101 — Plant Identification and Culture**

**(3) F — CSU, UC**

Designed to acquaint the student with woody ornamental plants and selected accent plants used in the Santa Barbara region. Approximately 200 trees, shrubs, vines and various herbaceous ornamentals are presented for identification and close scrutiny.

### **EH 102 — Soils and Plant Nutrients and Plant Installation**

**(3) S — CSU**

Defines the properties of soil, nutrients needed by plant materials to thrive, fertilizers and the interaction of basic soil components as they relate to the total landscape environment. Proper techniques of ornamental plant installation are covered. Biodynamic and sustainable horticulture is emphasized.

### **EH 103 — Irrigation and Garden Waterworks**

**(3) F — CSU**

Designated as an introductory format detailing the materials and methods used in the landscape irrigation trade. Emphasis placed on maintenance and repair of irrigation systems. Trouble-shooting and retrofitting are also highlighted. Water conservation, xeriscaping and irrigation management are featured. Simple plan reading and development are reviewed.

### **EH 104 — Landscape Maintenance**

**(3) F — CSU**

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) S — CSU**

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, Plant Propagation and Plant Recognition**

**(3) S — CSU**

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**

**(4) F, S, Summer — CSU**

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**

Introduction to central concepts of environmental horticulture, covering horticultural practices and methods, with focus on long-term sustainability and local ecological issues. Students build foundational knowledge through projects, lectures and discussions in management of a variety of horticultural projects and enterprises.

### **EH 112 — Ecological Restoration I**

**(3) — CSU**

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**

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) F, S — CSU**

*Skills Advisories: MATH 1 and eligibility for ENG 103*

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) F, S — CSU**

*Prerequisites: DRFT 126 or EH 126*

*Skills Advisories: MATH 1 and eligibility for ENG 103*

Advanced principles of drafting and plan reading required for the landscape architecture and ornamental horticulture fields. Work includes site plans, elevations and details.

**EH 201 — Arboriculture**  
**(3) — CSU**

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**

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**

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**

Course reviews some 300 edible trees, shrubs, vines and herbaceous perennials and includes their care and origins.

**EH 205 — Ground Covers and Turf**  
**(1) — CSU**

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

**EH 206 — Water Efficient Landscapes**  
**(1) — CSU**

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) Summer — CSU**

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) Summer — CSU**

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) Fall — CSU**

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.

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**EH 210/ENVS 210 — Permaculture Design**

**(1) F — CSU**

*Corequisites: None*

*Course Advisories: ENVS 110 or EH 110*

*Skills Advisories: Eligibility for ENG 110 or ENG 110H or ENG 110GB*

Application of ecological and environmental principles to designing human systems that are locally sustainable and require reduced inputs. When taken with ENVS 110 or EH 110, the successful student is certified as a Permaculture Design Trainee and receives a Permaculture Design Certificate recognized worldwide.

*(EH 200-level classes may be credited toward two-year degrees.)*

**EH 211 — Spring Native Flora Identification**

**(1) S, Summer — CSU**

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

**EH 212 — Summer Native Flora Identification**

**(1) Summer — CSU**

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

**EH 213 — History of Gardens**

**(1) — CSU**

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) F, S — 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.*

Explores elements for success in horticulture through lectures and guest speakers, including job preparation, work ethics and planning. Students get credit for paid or volunteer outside-class work overseen by a supervisor. Two units in each of two semesters minimum required for A.S. degree two units in one semester for a 1-year certificate.

**EH 299 — Independent Study in Environmental Horticulture**

**(1-4) F, S — CSU**

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

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