

HORTICULTURE

Natural and Applied Sciences Division

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<http://www.cabrillo.edu/programs>

General Horticulture and Crop Production

Program Description:

The horticulture program prepares students for entry level to management jobs and self-employment in diverse horticulture businesses. It affords local horticulturists and working professionals the means to upgrade their skills and knowledge. Opportunities to obtain valuable experience are provided in the greenhouse/garden facility and by working to enhance campus landscapes.

DEGREES AND CERTIFICATES

The college offers two A.S. Degrees, two Certificates of Achievement and nine Skills Certificates in Horticulture. Students may obtain an A.S. Degree in General and Crop Production or Landscape Horticulture. Students may earn only one A.S. Degree. Separate certificates may be obtained in both areas of concentration.

A.S. Degree: General Horticulture and Crop Production

A.S. General Education **21 Units**

Core Courses (37 units)

HORT 1A	Basic Horticulture.	4
HORT 1B	Basic Horticulture: Crop Production	4
HORT 2	Soil Science and Management.	4
HORT 52	Greenhouse Design and Operation.	3
HORT 54	Business Aspects of Horticulture.	4
HORT 58	Irrigation System Design and Installation	3
HORT 62	Fall Plant Materials and Design	3
HORT 63	Spring Plant Materials and Design.	3
HORT 100A	Plant Propagation.	1
HORT 125	Introduction to Hydroponic Food Production.	2
HORT 150	Pest Management	4
HORT 199C	Career Work Experience Education	2

Approved Electives:

Any Horticulture Course.	2
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Total Units **60**

A.S. Degree: Landscape Horticulture

A.S. General Education **21 Units**

Core Courses (38-40 units)

HORT 1A	Basic Horticulture.	4
HORT 2	Soil Science and Management.	4
HORT 54	Business Aspects of Horticulture.	4
or		
HORT 164	California Native Plants & Plant Communities	2

HORT 57	Landscape Construction.	3
HORT 58	Irrigation System Design and Installation	3
or		
HORT 172	Arboriculture	3
HORT 60A	Landscape Gardening.	3
or		
HORT 160B	Edible Landscaping	3
or		
HORT 170	Restoration Landscaping	3
HORT 62	Fall Plant Materials and Design	3
HORT 63	Spring Plant Materials and Design.	3
HORT 65	Landscape Design Graphics.	2
HORT 66	Landscape Design: Theory and Process	3
HORT 150	Pest Management	4
HORT 175	Sustainable Landscaping	4
HORT 199C	Career Work Experience Education.	0 - 1
Total Units		60

Certificate of Achievement: Landscape Horticulture

Core Courses (38-40 units)

HORT 1A	Basic Horticulture.	4
HORT 2	Soil Science and Management.	4
HORT 54	Business Aspects of Horticulture.	4
or		
HORT 164	California Native Plants & Plant Communities	2
HORT 57	Landscape Construction.	3
HORT 58	Irrigation System Design and Installation	3
or		
HORT 172	Arboriculture	3
HORT 60A	Landscape Gardening.	3
or		
HORT 160B	Edible Landscaping	3
or		
HORT 170	Restoration Landscaping	3
HORT 62	Fall Plant Materials and Design	3
HORT 63	Spring Plant Materials and Design.	3
HORT 65	Landscape Design Graphics.	2
HORT 66	Landscape Design: Theory and Process	3
HORT 150	Pest Management	4
HORT 175	Sustainable Landscaping	4
HORT 199C	Career Work Experience Education.	0 - 1

Other Required Courses

ENGL 100	Elements of Writing	3
or		
ENGL 1A/1AH/1AMC/1AMCH	3	
or		
CABT 157	Business and Technical Writing	3

Total Units **41 - 43**

Certificate of Achievement: Greenhouse and Nursery Management

General Horticulture and Crop Production Core Courses (37 units)

HORT 1A	Basic Horticulture.	4
HORT 1B	Basic Horticulture: Crop Production	4

HORT 2	Soil Science and Management	4
HORT 52	Greenhouse Design and Operation	3
HORT 54	Business Aspects of Horticulture	4
HORT 58	Irrigation System Design and Installation	3
HORT 62	Fall Plant Materials and Design	3
HORT 63	Spring Plant Materials and Design	3
HORT 100A	Plant Propagation	1
HORT 125	Introduction to Hydroponic Food Production	2
HORT 150	Pest Management	4
HORT 199C	Career Work Experience Education	2
Other Required Courses		
ENGL 100	Elements of Writing	3
or		
ENGL 1A/1AH/1AMC/1AMCH		3
or		
CABT 157	Business and Technical Writing	3
Total Units		40

Horticulture Skills Certificates:

Skills Certificate: Alternative Crop Production

Methods

Required

HORT 1A	Basic Horticulture.	4
HORT 2	Soil Science and Management	4
HORT 70	Organic Agriculture	3
HORT 125	Introduction to Hydroponic Food Production	2
HORT 150	Pest Management	4
Total Units		17

Skills Certificate: Arboriculture

Required

HORT 62	Fall Plant Materials and Design	3
HORT 63	Spring Plant Materials and Design	3
HORT 150	Pest Management	4
HORT 162PR	Landscape Pruning	0.5
HORT 172	Arboriculture	3
Total Units		13.5

Skills Certificate: General Horticulture

Required

HORT 1A	Basic Horticulture.	4
HORT 1B	Basic Horticulture: Crop Production	4
HORT 2	Soil Science and Management	4
HORT 150	Pest Management	4
Total Units		16

Skills Certificate: Greenhouse and Nursery Management

Required

HORT 1A	Basic Horticulture.	4
HORT 1B	Basic Horticulture: Crop Production	4
HORT 52	Greenhouse Design and Operation	3
HORT 100A	Plant Propagation	1

HORT 150	Pest Management	4
Total Units		16

Skills Certificate: Home Horticulture

Required

HORT 1A	Basic Horticulture.	4
HORT 60A	Landscape Gardening	3
HORT 100A	Plant Propagation	1
HORT 150	Pest Management	4
HORT 160B	Edible Landscaping	3
Total Units		15

Skills Certificate: Landscape Construction

Required

HORT 2	Soil Science and Management	4
HORT 57	Landscape Construction	3
HORT 58	Irrigation System Design and Installation	3
HORT 62	Fall Plant Materials and Design	3
or		
HORT 63	Spring Plant Materials and Design	3
HORT 65	Landscape Design Graphics	2
Total Units		15

Skills Certificate: Landscape Design

Required

HORT 62	Fall Plant Materials and Design	3
HORT 63	Spring Plant Materials and Design	3
HORT 65	Landscape Design Graphics	2
HORT 66	Landscape Design: Theory and Process	3
HORT 175	Sustainable Landscaping	4
Total Units		15

Skills Certificate: Landscape Gardner

Required

HORT 58	Irrigation System Design and Installation	3
HORT 60A	Landscape Gardening.	3
HORT 62	Fall Plant Materials and Design	3
or		
HORT 63	Spring Plant Materials and Design.	3
HORT 150	Pest Management	4
HORT 162PR	Landscape Pruning	0.5
HORT 199C	Career Work Experience Education	1
Total Units		14.5

Skills Certificate: Restoration Landscaping

Required

HORT 2	Soil Science and Management.	4
HORT 57	Landscape Construction.	3
HORT 62	Fall Plant Materials and Design	3
or		
HORT 63	Spring Plant Materials and Design.	3
HORT 164	California Native Plants & Plant Communities .	2
HORT 170	Restoration Landscaping	3
Total Units		15

Horticulture Courses

HORT 1A

Basic Horticulture

4 units; 3 hours Lecture, 3 hours Laboratory

Recommended Preparation: Eligibility for ENGL 100 and READ 100; Eligibility for MATH 154.

Surveys careers and the history of horticulture as well as horticultural plant science including plant growth and development, plant taxonomy, nomenclature and plant adaptations for survival in a Mediterranean climate.

Transfer Credit: Transfers to CSU.

HORT 1B

Basic Horticulture: Crop Production

4 units; 3 hours Lecture, 5 hours Laboratory

Recommended Preparation: Eligibility for ENGL 100 and READ 100; Eligibility for MATH 154.

Surveys the production of ornamental and landscape plants to gain a working knowledge of how light, temperature, water, fertilizers, and soil-less media interact in a controlled environment. Also covers pest management and propagation of selected ornamentals.

Transfer Credit: Transfers to CSU.

HORT 2

Soil Science and Management

4 units; 3 hours Lecture, 3 hours Laboratory

Recommended Preparation: Eligibility for ENGL 100 and READ 100; Eligibility for MATH 154.

Examines physical, chemical and biological composition of soils, local soil formations, methods of soil sampling and testing, fertilizer and liming techniques, production and use of organic and chemical fertilizers, green manures and relationship between soils and human culture. Also includes the use and testing of soils for production plus septic and gray water systems.

Transfer Credit: Transfers to CSU.

HORT 52

Greenhouse Design and Operation

3 units; 3 hours Lecture

Recommended Preparation: Eligibility for ENGL 100 and READ 100; Eligibility for MATH 154.

Presents the design and management of commercial and residential greenhouses including site analysis, greenhouse styles, glazing, circulation, cooling, venting, heating systems, and control systems. This class also covers general growing conditions of plants in a controlled environment. The business of nurseries and greenhouses is also covered briefly.

Transfer Credit: Transfers to CSU.

HORT 54

Business Aspects of Horticulture

4 units; 3 hours Lecture, 3 hours Laboratory

Recommended Preparation: Eligibility for ENGL 100 and READ 100; Eligibility for MATH 154.

Focuses on starting and managing horticultural businesses, including licenses required, developing a business plan, sales, marketing, computer invoicing, and record keeping and legal requirements of employers. Discusses myriad of employment opportunities, especially niche markets. Labs include field trips and retail/inventory training for departmental plant sales.

Transfer Credit: Transfers to CSU.

HORT 57

Landscape Construction

3 units; 2 hours Lecture, 3 hours Laboratory

Recommended Preparation: Eligibility for ENGL 100 and READ 100; Eligibility for MATH 154.

Presents an overview of the landscape contracting industry and provides hands-on experience with landscape construction techniques including site layout and preparation, planting, interlocking pavers, retaining walls, wood construction and water features as well as bidding and estimating projects.

Transfer Credit: Transfers to CSU.

HORT 58

Irrigation System Design and Installation

3 units; 2 hours Lecture, 3 hours Laboratory

Recommended Preparation: Eligibility for ENGL 100 and READ 100; Eligibility for MATH 154.

Introduces the fundamentals of residential and commercial irrigation system design and installation using PVC, poly pipe and drip systems, programming irrigation clocks, mainline connection, valve installation and diagnosing system problems.

Transfer Credit: Transfers to CSU.

HORT 60A

Landscape Gardening

3 units; 3 hours Lecture

Recommended Preparation: Eligibility for ENGL 100 and READ 100.

Introduces principles and applications of residential landscape design, installation and maintenance including pruning, construction, plant selection, use of new and recycled materials, and water conserving concepts.

Transfer Credit: Transfers to CSU.

HORT 62

Fall Plant Materials and Design

3 units; 2 hours Lecture, 3 hours Laboratory

Recommended Preparation: Eligibility for ENGL 100 and READ 100; Eligibility for MATH 154.

Covers the identification of the common plants used in local landscapes including native and introduced trees, shrubs, groundcovers, and vines. Also covers the uses of plants in the landscape, California natives, firescaping, history of gardens, selecting groundcovers, plant selection software and planting design.

Transfer Credit: Transfers to CSU.

HORT 63

Spring Plant Materials and Design

3 units; 2 hours Lecture, 3 hours Laboratory

Recommended Preparation: Eligibility for ENGL 100 and READ 100; Eligibility for MATH 154.

Covers the identification of the plants used in local landscapes including ornamental grasses, perennials, trees and shrubs. Also covers selecting proper plants for landscape needs including flowering trees and plants for hedges, screens and espaliers. Field trips to local landscapes included.

Transfer Credit: Transfers to CSU.

HORT 65

Landscape Design Graphics

2 units; 1 hour Lecture, 3 hours Laboratory

Recommended Preparation: Eligibility for ENGL 100 and READ 100; Eligibility for MATH 154.

Introduces graphic techniques of landscape design using various media to create base plans, plan views, and elevation drawings.

Transfer Credit: Transfers to CSU.

HORT 66

Landscape Design: Theory and Process

3 units; 2 hours Lecture, 3 hours Laboratory

Recommended Preparation: Eligibility for ENGL 100 and READ 100; Eligibility for MATH 154.

Presents principles of landscape design theory and process including graphics, problem solving, and presentation skills through residential site analysis, program development, case studies, client interaction and site measurement.

Transfer Credit: Transfers to CSU.

HORT 70

Organic Agriculture

3 units; 3 hours Lecture, 1 hour Laboratory

Recommended Preparation: Eligibility for ENGL 100 and READ 100; Eligibility for MATH 154.

Introduces organic agriculture with an emphasis on organic food production and a practical understanding of the philosophy, principles and practices of organic crops.

Transfer Credit: Transfers to CSU.

HORT 71

Organic Food Production 1

4 units; 3 hours Lecture, 3 hours Laboratory

Prerequisite: HORT 70 or equivalent experience.

Recommended Preparation: Eligibility for ENGL 100 and READ 100; Eligibility for MATH 154.

Continues the theory and practices of good management begun in HORT 70 emphasizing springtime, commercial scale, local area, organic vegetable, fruit and flower crops. Emphasizes the scientific, economic and social basis for good management practices. Designed primarily for students planning a management career in organic horticulture.

Transfer Credit: Transfers to CSU.

HORT 72

Organic Food Production 2

1 unit; 0.5 hour Lecture, 1.5 hours Laboratory

Prerequisite: HORT 71 or equivalent experience.

Recommended Preparation: Eligibility for ENGL 100 and READ 100; Eligibility for MATH 154.

Continues the theory and practices of good management agriculture begun in HORT 71 emphasizing summertime, commercial scale, local area, organic vegetable, fruit and flower crops. Emphasizes the scientific, economic and social basis for good management practices. Explores organic farming and farm business, and is designed primarily for students planning a management career in organic horticulture.

Transfer Credit: Transfers to CSU.

HORT 100A**Plant Propagation**

1 unit; 3 hours Laboratory

Repeatability: May be taken a total of 3 times.

Recommended Preparation: Eligibility for ENGL 100 and READ 100; Eligibility for MATH 154.

Presents techniques in plant propagation including seed collection, handling and sowing as well as producing plants from cuttings, layering, leaf pieces, division, and grafting. Topics include equipment and facilities commonly used in nursery and greenhouse production, appropriate chemicals and hormones, growing mediums and fertilizers appropriate for propagation, sanitation procedures, propagation scheduling, lining out and potting up.

HORT 125**Introduction to Hydroponic Food Production**

2 units; 1 hour Lecture, 3 hours Laboratory

Recommended Preparation: Eligibility for ENGL 100 and READ 100; Eligibility for MATH 154.

Introduces concepts and practices of growing food crops hydroponically, including set up, nutrient solution preparation, lighting needs and pest control.

HORT 150**Pest Management**

4 units; 3 hours Lecture, 3 hours Laboratory

Recommended Preparation: Eligibility for ENGL 100 and READ 100; Eligibility for MATH 154.

Introduces the concepts and practices of integrated pest management emphasizing identification of insects, vertebrates, diseases and weeds in managed landscapes, crops, nurseries and greenhouses on the Central Coast. Covers pesticide use and safety and the techniques of integrated pest management including: biological control, resistant varieties, cultural controls and mixed cropping.

HORT 156A**Landscape Equipment Operation**

1 unit; 0.5 hour Lecture, 1.5 hours Laboratory

Recommended Preparation: Eligibility for ENGL 100 and READ 100; Eligibility for MATH 154.

Introduces the proper use and selection of the equipment used in the landscape maintenance business including mowers, string trimmers, blowers, and aerators. Safety, basic repairs and maintenance will also be covered.

HORT 160B**Edible Landscaping**

3 units; 3 hours Lecture

Recommended Preparation: Eligibility for ENGL 100 and READ 100; Eligibility for MATH 154.

Emphasizes the basic principles of home food production; including fruit, nut, herb and vegetable crops best suited to Santa Cruz County, soil preparation and propagation mixes, fertilizer use, care and use of garden tools and pest control techniques.

HORT 161**Soil Conservation**

3 units; 3 hours Lecture

Recommended Preparation: Eligibility for ENGL 100 and READ 100; Eligibility for MATH 154.

Presents soil erosion control and soil quality problems within urban and native land soils affected by human activities by assessing soil conditions, using soil surveys and preparing an erosion control plan. Evaluation of watershed restoration techniques is also covered.

HORT 162A-Z**Current Topics in Horticulture**

0.5 - 4 units; 0.5 hour Lecture or 1.5 hours Laboratory

Repeatability: May be taken a total of 4 times.

Recommended Preparation: Eligibility for ENGL 100 and READ 100; Eligibility for MATH 154.

Presents selected topics in horticulture not covered by regular *Catalog* offerings. Each special topic course will be announced, described and given its own title and letter designation in the *Schedule of Classes*. The structure and format of each class will vary depending on the subject matter and may consist of lecture, lab, or both.

HORT 164**California Native Plants & Plant Communities**

2 units; 1 hour Lecture, 3 hours Laboratory

Recommended Preparation: Eligibility for ENGL 100 and READ 100; Eligibility for MATH 154.

Covers the identification of native plants and their best uses in the developed landscape, and includes discussion of the diverse native plant communities of California.

HORT 165**The Therapeutic Garden**

4 units; 3 hours Lecture, 3 hours Laboratory

Recommended Preparation: Eligibility for ENGL 100 and READ 100; Eligibility for MATH 154.

Introduces the use of plants, landscapes, and plant-related activities in improving the health and well being of people by focusing on the therapeutic and rehabilitative treatment of people with special needs. Also covers the design of accessible landscapes, the vocational potentials of horticultural therapy working in service programs within hospitals, nursing homes, correctional facilities, alcohol rehabilitation centers, and vocational training centers.

HORT 170**Restoration Landscaping**

3 units; 2 hours Lecture, 3 hours Laboratory

Recommended Preparation: Eligibility for ENGL 100 and READ 100; Eligibility for MATH 154.

Explores the theory and practice of restoring native landscapes with the goal of promoting biodiversity, mimicking natural habitats, solving erosion problems and assessing compromised soil situations. Techniques such as grazing and burning to control invasive exotic plants, will be covered as well as the preservation of fragile plant communities, and propagation and seed collection methods. Field trips to local restoration sites included.

HORT 172

Arboriculture

3 units; 2 hours Lecture, 3 hours Laboratory

Recommended Preparation: Eligibility for ENGL 100 and READ 100; Eligibility for MATH 154.

Introduces the care and management of trees in the landscape providing preparation for the International Society of Arboriculture (ISA) certification exam and covers the selection, training, protecting, fertilizing and the basics of pruning. Soil, water and nutrient management and plant biology will be discussed as well as the operation of a tree maintenance business. Trees common to the ISA exam will be covered.

HORT 175

Sustainable Landscaping

4 units; 3 hours Lecture, 3 hours Laboratory

Recommended Preparation: Eligibility for ENGL 100 and READ 100; Eligibility for MATH 154.

Encompasses sustainable landscaping theories and practices including designing, installing and maintaining ecologically sound landscapes through renovating existing gardens with living walls, green roofs, permeable hardscapes and rain water catchment systems, appropriate plant selection, and water conservation and irrigation.