

Horticulture

Careers & Technology

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DEGREES

- A.S. — Horticulture, Landscape Design
- A.S. — Horticulture, Landscape Industry
- A.S. — Horticulture, Nursery Industry

CERTIFICATES OF ACHIEVEMENT

- Landscape Design
- Landscape Industry
- Nursery Operations

See also:

Green Buildings: Environmental Design, Energy Management and Performance Based Construction (page 75)

Program Description

These CRC programs offer students the opportunity to blend the disciplines of horticulture, construction, drafting and business into a unique professional opportunity. A wide variety of employment opportunities are available in the Sacramento area for students completing the associate's degree or one of the certificate programs. The continued growth of the area and the need for specialized training are creating a demand for qualified individuals.

A student majoring in a degree option program should, upon completion, be able to meet the standards imposed by local industries for proper placement within the selected job area of the student's choice. It should, however, be noted that each employment situation may require that additional standards be met.

Career Opportunities

- Nursery Management and Operations
- Park Maintenance
- Landscape Design
- Contracting & Maintenance
- Fertilizer & Insecticide Application
- Research
- Retail/Wholesale
- Estimator
- Consultant
- Government Agency employee

Highlights

- Hands-on experience in greenhouse operations
- Field trips for appreciation and evaluative study
- Practical design opportunities

NOTE TO TRANSFER STUDENTS:

If you are interested in transferring to a four-year college or university to pursue a bachelor's degree in this major, it is critical that you meet with a CRC counselor to select and plan the courses for your major. Schools vary widely in terms of the required preparation. The courses that CRC requires for an associate's degree in this major may be different from the requirements needed for the bachelor's degree.

For information about the student learning outcomes for this program, see <http://www.crc.losrios.edu/pslo>

DEGREE

A.S. — Horticulture, Landscape Industry
CODE #1146

A diversity of professional career opportunities are available to those who complete the associate degree in Landscape Industry. The degree in Landscape Industry is designed to provide students a comprehensive resume of skills and knowledge for employment in the horticulture industry. Students who complete the associate degree in Landscape Industry find employment in a wide range of areas including landscape contracting, construction, installation, and maintenance, turf management, parks and recreation, golf course maintenance, golf course management and supervision, landscape irrigation, landscape design and consulting, nurseries and garden centers, pest management, horticulture supply, and power equipment servicing.

REQUIRED PROGRAM.....	Units
HORT 100 Plant Diseases and Pests.....	3
HORT 122 Landscape Practices:	
Pesticide Qualified Applicator's Certificate	2
HORT 300 Introduction to Horticulture.....	3
HORT 302 Soils and Plant Nutrition (3) or	
PLTS 310 Soils and Plant Nutrition (3).....	3
HORT 305 Plant Materials I.....	3
HORT 306 Plant Materials II.....	3
HORT 320 Landscape Construction.....	3
HORT 322 Landscape Graphics.....	3
HORT 324 Landscape Maintenance.....	3
HORT 325 Landscape Irrigation	3
HORT 326 Landscape Design	3
HORT 498 Work Experience in Horticulture.....	4
AMT 306 Small Engine Repair.....	3
TOTAL UNITS REQUIRED	39

Suggested Electives:

- AGB 300 Introduction to Agriculture Business (3)
- AGB 310 Agriculture Computer Applications (3)
- AGB 320 Agriculture Accounting (3)
- AGB 330 Agriculture Sales and Communication (3)
- AGB 331 Agriculture Marketing (3)
- CMT 300 Intro to Construction Plans and Specifications (3)

G.E. Graduation Requirements for this degree - see pages 20-21

DEGREE
A.S.—Horticulture, Landscape Design
CODE #1113

A diversity of professional career opportunities are available to those who wish to serve as designers and planners of the land. Landscape designers create outdoor spaces in which people live, work, and play. Design activities range from residential and commercial properties to community facilities and regional landscapes. The Associate Degree in Landscape Design provides a strong horticulture foundation, along with the specialized skills and technical knowledge to prepare students for employment opportunities in the field of landscape planning and design. Students who complete a degree in Landscape Design find employment in landscape design, planning, and construction, turf management, parks and recreation, nurseries and garden centers, and other areas in horticulture. Students may also choose to transfer to a state college or university landscape design or landscape architecture program.

REQUIRED PROGRAM.....		Units
HORT 300	Introduction to Horticulture	3
HORT 302	Soils and Plant Nutrition (3) or	
PLTS 310	Soils and Plant Nutrition (3).....	3
HORT 305	Plant Materials I.....	3
HORT 306	Plant Materials II.....	3
HORT 320	Landscape Construction.....	3
HORT 322	Landscape Graphics.....	3
HORT 324	Landscape Maintenance.....	3
HORT 325	Landscape Irrigation	3
HORT 326	Landscape Design	3
HORT 498	Work Experience in Horticulture.....	4
TOTAL UNITS REQUIRED		31

- Suggested Electives:**
- ADT 310 Architectural Computer-Aided Drawing I (3)
 - AGB 300 Introduction to Agriculture Business (3)
 - AGB 310 Agriculture Computer Applications (3)
 - AGB 320 Agriculture Accounting (3)
 - AGB 330 Agriculture Sales and Communication (3)
 - AGB 331 Agriculture Marketing (3)
 - ART 325 Introduction to Graphic Design (3)
 - CMT 300 Intro to Construction Plans and Specifications (3)

G.E. Graduation Requirements for this degree - see pages 20-21

CERTIFICATE OF ACHIEVEMENT
Landscape Industry
CODE #1146

REQUIRED PROGRAM.....		Units
HORT 100	Plant Diseases and Pests.....	3
HORT 300	Introduction to Horticulture	3
HORT 302	Soils and Plant Nutrition (3) or	
PLTS 310	Soils and Plant Nutrition (3).....	3
HORT 305	Plant Materials I.....	3
HORT 306	Plant Materials II.....	3
HORT 324	Landscape Maintenance.....	3
HORT 498	Work Experience in Horticulture.....	4
AMT 306	Small Engine Repair.....	3
TOTAL UNITS REQUIRED		25

- Suggested Electives:**
- AGB 300 Introduction to Agriculture Business (3)
 - AGB 310 Agriculture Computer Applications (3)
 - AGB 320 Agriculture Accounting (3)

DEGREE
A.S.—Horticulture, Nursery Industry
CODE #1147

A diversity of professional career opportunities are available to those who wish to work in the nursery industry or related field. Nurseries produce and provide the plant materials used to create outdoor spaces in which people live, work, and play. The Associate Degree in Nursery Industry provides a strong horticulture foundation, along with the specialized skills and technical knowledge to prepare students for employment opportunities in wholesale and retail nurseries, garden centers, plant propagation and production, landscape contracting and construction, grounds maintenance and management, or other areas in horticulture. Students may also choose to transfer to a state college or university level horticulture or nursery program.

REQUIRED PROGRAM.....		Units
HORT 100	Plant Diseases and Pests.....	3
HORT 122	Landscape Practices: Pesticide Qualified	
	Applicator's Certificate.....	2
HORT 300	Introduction to Horticulture	3
HORT 302	Soils and Plant Nutrition (3) or	
PLTS 310	Soils and Plant Nutrition (3).....	3
HORT 305	Plant Materials I.....	3
HORT 306	Plant Materials II.....	3
HORT 310	Nursery Practices.....	3
HORT 312	Plant Propagation.....	3
HORT 322	Landscape Graphics.....	3
HORT 324	Landscape Maintenance.....	3
HORT 326	Landscape Design	3
HORT 498	Work Experience in Horticulture.....	4
TOTAL UNITS REQUIRED		36

- Suggested Electives:**
- ADT 310 Architectural Computer-Aided Drawing I (3)
 - AGB 300 Introduction to Agriculture Business (3)
 - AGB 310 Agriculture Computer Applications (3)
 - AGB 320 Agriculture Accounting (3)
 - AGB 330 Agriculture Sales and Communication (3)
 - AGB 331 Agriculture Marketing (3)
 - ART 325 Intro to Graphic Design (3)
 - CMT 300 Intro to Construction Plans and Spec. (3)

G.E. Graduation Requirements for this degree - see pages 20-21

CERTIFICATE OF ACHIEVEMENT
Landscape Design
CODE #1113

The certificate in Landscape Design provides a strong horticulture foundation, along with the specialized skills and technical knowledge to prepare students for entry-level employment opportunities in the horticulture industry. Students who complete the Landscape Design certificate find employment in landscape design, planning, and construction, turf management, parks and recreation, nurseries and garden centers, or others areas in horticulture.

REQUIRED PROGRAM.....		Units
HORT 300	Introduction to Horticulture	3
HORT 302	Soils and Plant Nutrition (3) or	
PLTS 310	Soils and Plant Nutrition (3).....	3
HORT 305	Plant Materials I.....	3
HORT 306	Plant Materials II.....	3
HORT 322	Landscape Graphics.....	3
HORT 325	Landscape Irrigation	3
HORT 326	Landscape Design	3
HORT 498	Work Experience in Horticulture.....	4
TOTAL UNITS REQUIRED		25

- Suggested Electives:**
- AGB 300 Introduction to Agriculture Business (3)
 - AGB 310 Agriculture Computer Applications (3)
 - AGB 320 Agriculture Accounting (3)
 - CMT 300 Introduction to Construction Plans and Spec. (3)

CERTIFICATE OF ACHIEVEMENT

Nursery Operations

CODE #1115

The certificate in Nursery Operations is designed to provide a well-rounded base of skills and knowledge to prepare students for entry-level employment opportunities in the nursery industry. Students who complete the Nursery Operations certificate find employment in wholesale and retail nurseries, garden centers, plant propagation and production, landscape contracting and construction, ground maintenance and management, or other areas in horticulture.

REQUIRED PROGRAM.....		Units
HORT 100	Plant Diseases and Pests.....	3
HORT 300	Introduction to Horticulture.....	3
HORT 302	Soils and Plant Nutrition (3) or	
PLTS 310	Soils and Plant Nutrition (3).....	3
HORT 305	Plant Materials I.....	3
HORT 306	Plant Materials II.....	3
HORT 310	Nursery Practices.....	3
HORT 312	Plant Propagation.....	3
HORT 498	Work Experience in Horticulture.....	4
TOTAL UNITS REQUIRED.....		25

Suggested Electives:

AGB 300	Introduction to Agriculture Business (3)
AGB 310	Agriculture Computer Applications (3)
AGB 320	Agriculture Accounting (3)
HORT 122	Landscape Practices: Pesticide Qualified Applicator's Certificate (2)

HORTICULTURE (HORT)

HORT 100 Plant Diseases and Pests 3 Units

Prerequisite: None

Advisory: HORT 300

Hours: 36 hours LEC ; 54 hours LAB

This course provides a study of the insects, diseases, and weeds encountered in the landscape and nursery environment. It will focus on pest identification, principles of pest management, and state and federal laws and regulations with regard to pest control and pesticide use.

HORT 122 Landscape Practices: Pesticide Qualified Applicator's Certificate 2 Units

Prerequisite: None

Hours: 36 hours LEC

Laws, regulations, and safety concerns for pesticide applicators preparing to obtain (QAC) Qualified Applicator's Certificate or (QAL) Qualified Applicator's License. Environmental concerns regarding groundwater and other exposures will be discussed.

HORT 299 Experimental Offering in Horticulture .5-4 Units

Prerequisite: None

Hours: 18 hours LEC ; 54 hours LAB

HORT 300 Introduction to Horticulture 3 Units

Prerequisite: None

General Education: AA/AS Area IV

Course Transferable to CSU

Hours: 54 hours LEC

Survey of principles and practices of horticulture designed to improve knowledge of the home gardener as well as those seeking a career. Basic plant structure and function, general knowledge of plant usage, landscape planning and maintenance.

HORT 302 Soils and Plant Nutrition 3 Units

Same As: PLTS 310

Prerequisite: None

Advisory: HORT 300 or PLTS 300

General Education: AA/AS Area IV

Course Transferable to UC/CSU

Hours: 36 hours LEC ; 54 hours LAB

This course provides a basic knowledge of the physical, chemical, and biological properties of soils. The course includes factors of: fundamental soil properties, soil and plant relationships, principles of soil formation, fertilizers and soil management, salinity, pH, erosion management, and non-agricultural uses. This course is the same as PLTS 310, and only one may be taken for credit. See "Cross-Listed Courses" in the catalog.

HORT 305 Plant Materials I 3 Units

Prerequisite: None

Advisory: HORT 300

Course Transferable to UC/CSU

See UC Limitations & Counselor

Hours: 36 hours LEC ; 54 hours LAB

This course is the identification and study of the growth habits, cultural practices, and ornamental uses of landscape and indoor plants adapted to climates of California. Plants emphasized will come from the current California Association of Nurseries and Garden Centers (CANGC) and California Landscape Contractors Association (CLCA) certification exams plant lists. The focus will be on those plants best observed and studied during California's fall and/or winter seasons.

HORT 306 Plant Materials II 3 Units

Prerequisite: None

Advisory: HORT 300

Course Transferable to UC/CSU

See UC Limitations & Counselor

Hours: 36 hours LEC ; 54 hours LAB

This course is the identification and study of the growth habits, cultural practices, and ornamental uses of landscape and indoor plants adapted to climates of California. Plants emphasized will come from the current California Association of Nurseries and Garden Centers (CANGC) and California Landscape Contractors Association (CLCA) certification exams plant lists. The focus will be on those plants best observed and studied during California's spring and/or summer seasons.

HORT 310
Nursery Practices **3 Units**
Prerequisite: None
Advisory: HORT 300
Course Transferable to CSU
Hours: 36 hours LEC ; 54 hours LAB

This course is a study and application of the practices and management of both wholesale and retail nurseries including marketing, propagation and cultural practices of herbaceous and woody plants, and business management practices required in establishing and operating a nursery.

HORT 312
Plant Propagation **3 Units**
Prerequisite: None
Advisory: HORT 300
Course Transferable to CSU
Hours: 36 hours LEC ; 54 hours LAB

Plant Propagation is a study and practice of the sexual and asexual reproduction of landscape plant species. The emphasis of Horticulture 312 will be on the preparation and use of propagating and planting mediums, planting, transplanting, fertilizing, propagation facility pest and disease control, propagation structure utilization and site layout. Additional topics include the maintenance of common tools and equipment, and the laws and regulations pertaining to plant propagation and nursery production.

HORT 320
Landscape Construction **3 Units**
Prerequisite: None
Advisory: HORT 300
Course Transferable to CSU
Hours: 36 hours LEC ; 54 hours LAB

This course covers the fundamentals of landscape construction, including soil preparation, paving and construction materials, hand and power tool use, turf and plant installation, plan reading, estimating, and bid preparation. It will emphasize approved industry construction methods, local codes and state requirements. This course is an initial step in preparation for the California State C-27 Landscape Contractor License exam.

HORT 322
Landscape Graphics **3 Units**
Prerequisite: None
Advisory: HORT 300, 305, 306, 320 and 324
Course Transferable to CSU
Hours: 54 hours LEC

Landscape graphics is the study of technical drafting skills and freehand graphics including line quality, lettering and organization as it relates to landscape design. The use of a variety of graphic skills and media will be developed along with an introduction to basic landscape design theory and practice.

HORT 323
Sustainable Landscape Design **1 Unit**
Prerequisite: None
Course Transferable to CSU
Hours: 18 hours LEC

This course is designed to provide the student with increased knowledge and understanding in the area of Sustainable Landscape Design. This course will examine the fundamental principles of sustainability, and how the principles can be utilized to guide the designer in the development of ornamental landscapes. An emphasis will be placed on the relationships between environmental conditions, soils, water, plant materials, and construction materials and how these relationships guide the landscape development process. Additional topics will include construction material selection, plant material selection, soil preparation, sustainable landscape maintenance, and pest management for sustainable landscapes.

HORT 324
Landscape Maintenance **3 Units**
Prerequisite: None
Advisory: HORT 300
Course Transferable to CSU
Hours: 36 hours LEC ; 54 hours LAB

This course prepares students to enhance the function and aesthetic value of public and private landscapes by applying appropriate maintenance techniques. Topics include planting, pruning, watering, soil fertility, pest management, weed control, power equipment operation and maintenance, and landscape maintenance business practices.

HORT 325
Landscape Irrigation **3 Units**
Prerequisite: None
Advisory: HORT 300 and 322
Course Transferable to CSU
Hours: 36 hours LEC ; 54 hours LAB

This course prepares students to design, install and maintain a water efficient landscape irrigation system. Topics include water supply, basic hydraulics, component identification and terminology, system layout, pipe sizing, water application head types, valves, and controllers.

HORT 326
Landscape Design **3 Units**
Prerequisite: HORT 322 with a grade of "C" or better
Advisory: HORT 300, 305 and/or 306
Course Transferable to CSU
Hours: 36 hours LEC ; 54 hours LAB

This course is the study and implementation of the art and science of landscape design. It covers the principles of design, the design process, advanced drafting techniques, and advanced graphics and presentation methods. Course and project emphasis is placed upon utilization of various landscape themes, unique design styles, and the problem solving process regarding residential and small commercial site landscape design.

HORT 495**Independent Studies in Horticulture****1-3 Units***Prerequisite: None**Course Transferable to CSU**Hours: 18 hours LEC ; 54 hours LAB***HORT 498****Work Experience in Horticulture****1-4 Units***Prerequisite: None**Course Transferable to CSU**Hours: 300 hours LAB*

This course provides students with opportunities to develop marketable skills in preparation for employment or advancement within their current job. Course content will include understanding the application of education to the workforce; completion of required forms, which document the student's progress and hours spent at the work site; and developing workplace skills and competencies. During the course of the semester, the student is required to fulfill an 18 hour orientation and 75 hours of related paid work experience, or 60 hours of unpaid work experience for one unit. An additional 75 or 60 hours of related work experience is required for each additional unit. The course may be taken again when there is new or expanded learning on the job for a maximum of 16 units.

HORT 499**Experimental Offering in Horticulture****.5-4 Units***Prerequisite: None**Course Transferable to CSU**Hours: 18 hours LEC ; 54 hours LAB*