# Career Technical Education Advisory Committee Meetings

## External Advisory Members

<table>
<thead>
<tr>
<th>Name and Position</th>
<th>Business Name and Address</th>
<th>Phone and Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>John Rauli - Liuna Apprentice Program Director, Former Student CCSF EHIF Gardener Apprenticeship Founder Pre-Apprenticeship - Founder</td>
<td>SFRPD/Community Workforce Director SFRPD/Mayor’s Pre-Apprenticeship Academy Liaison Gleneagles Golf Course, McLaren Park</td>
<td><a href="mailto:john.rauli@sfgov.org">john.rauli@sfgov.org</a> (415) 810-4905 sf261.blogspot.com <a href="mailto:delabonire@academyatgleneagles.blogspot.com">delabonire@academyatgleneagles.blogspot.com</a></td>
</tr>
<tr>
<td>Lora Kellner - Co President San Francisco Professional Gardeners Assoc/Former student</td>
<td>425 Potrero Ave. San Francisco, CA 94110</td>
<td><a href="mailto:lorakellner@sbcglobal.net">lorakellner@sbcglobal.net</a> (415) 752-1255</td>
</tr>
<tr>
<td>Michael Hofman - Horticulturist/Co-Owner Janet Moyer Landscaping Former Student</td>
<td>Janet Moyer Landscaping 1031 Valencia Street San Francisco, CA 94110</td>
<td>(415) 821-3760 – Office (415) 821-3779 – Fax <a href="mailto:info@jmoyerlandscaping.com">info@jmoyerlandscaping.com</a></td>
</tr>
<tr>
<td>Bernie Corace - Owner Dirty Hoe Landscaping - Former Student</td>
<td>PO Box 40117 San Francisco, CA 94140-0117</td>
<td>(415) 282-1058 <a href="mailto:bernie@dirtyhoelandscaping.com">bernie@dirtyhoelandscaping.com</a></td>
</tr>
<tr>
<td>Casey Allen/Owner Casey Allen Landscaping Former Student</td>
<td>615 Cole St. #8 San Francisco, CA 94117</td>
<td>(415) 235-1181 <a href="mailto:caseyallen@gmail.com">caseyallen@gmail.com</a></td>
</tr>
<tr>
<td>Brett Stevens - Co-Owner &quot;The Team&quot; - SFlandscapes Former Student</td>
<td>P.O. Box 34411 San Francisco, CA 94134</td>
<td>(415) 585-9137 <a href="mailto:info@sflandscapes.com">info@sflandscapes.com</a></td>
</tr>
<tr>
<td>Joan Svetik - Woodland Landscaping/Former Student</td>
<td>Woodlandscaping P.O. Box 5665 So San Francisco, CA 94083-5665</td>
<td>650-225-9700 <a href="mailto:woodlandscaping@yahoo.com">woodlandscaping@yahoo.com</a></td>
</tr>
<tr>
<td>Omar Woodland - Owner Woodland Landscaping - Former Student</td>
<td>Woodlandscaping P.O. Box 5665 So San Francisco, CA 94083-5665</td>
<td>650-225-9700 <a href="mailto:woodlandscaping@yahoo.com">woodlandscaping@yahoo.com</a></td>
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<tr>
<td>Janet Moyer - Janet Moyer Landscaping - Former Student</td>
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<td>(415) 821-3760 – Office (415) 821-3779 – Fax <a href="mailto:info@jmoyerlandscaping.com">info@jmoyerlandscaping.com</a></td>
</tr>
</tbody>
</table>

## Department Chair

Date: 1/21/16

## School Dean

Date: 1/21/16

## VCAA

Date: 6/21/16

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**Late Advisory Addition:**

**Celia Sisneros** Former/Student

**Operations Service City of Pleasanton**

**SFPGA LIBRARY**

670 28th Av

SF CA 94121

415.275.4465

Celia_Sisneros@yahoo.com

Celia P. Sisneros
Career Technical Education Advisory Committee Meetings

All Career Technical Education (CTE) programs are required to meet with their industry advisory committees at least once per year, to provide documentation of the meeting on the attached minutes sheet, to provide outcomes documentation of the meeting on the attached minutes sheet, and to submit the signed minutes to their School Dean by the end of the semester. Failure to meet these requirements may impact a program’s ability to access College and Perkins allocations funding for the program. All CTE programs are encouraged to meet each semester, if possible, with their industry committees and to engage in robust and on-going conversations with their industry partners for ongoing program improvement.

The CTE Advisory Committee should contain a diverse group of individuals from within the program (faculty, classified, students) and individuals external to the college who are actively involved in a variety of segments related to the workforce industry (e.g. local business leaders, compliance and licensing, industry employment agencies).

By the end of the Spring Semester, each CTE program will submit the Industry Advisory Committee composition information listed below to their School Dean:

Department/Program: Environmental Horticulture/Floristry-Horticulture Majors and Certificates

Department Chair: Steven Brown AIFD, CSFA, CFD, CCF, MFA

Proposed Meeting Semester: 2017 Date: TBD Time: TBD

Location: Horticulture/Floristry Ocean/Phelan Campus

Members of the Advisory Committee:

Internal Advisory Members

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Faculty/Classified/Student</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steven Brown AIFD, CSFA, CFD, CCF, MFA</td>
<td>Department Chair EH/F Gardener Apprenticeship Founder</td>
<td>Faculty</td>
</tr>
<tr>
<td>J. M. Hillan</td>
<td>Instructor/Owner-Hillan Landscaping</td>
<td>Faculty</td>
</tr>
<tr>
<td>Thomas Wang</td>
<td>Instructor</td>
<td>Faculty</td>
</tr>
<tr>
<td>Robert Broucared</td>
<td>Instructor/Owner-Broucared Landscaping</td>
<td>Faculty</td>
</tr>
<tr>
<td>Charmain Guillani</td>
<td>Instructor/Owner</td>
<td>Faculty J. Charmain Guillan</td>
</tr>
<tr>
<td>Auguste Broucared</td>
<td>Instructor/Owner Retired Broucared Landscaping</td>
<td>Faculty</td>
</tr>
<tr>
<td>Erick Bautista</td>
<td>Nursery Specialist</td>
<td>Classified</td>
</tr>
<tr>
<td>Ron Castignetti</td>
<td>Horticulture Assistant/ Lab Aide</td>
<td>Student</td>
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</tbody>
</table>
Career Technical Education Advisory Committee Meetings

All course outlines have been re-written and SLOs updated. Program Learning outcomes have been mapped, department is compliant in all areas.

Sample Program Student Learning Outcomes:

1. Demonstrate proficiency in plant identification.
2. Demonstrate proficiency the use of horticultural machines.
3. Demonstrate proficiency in plant propagation and production.
4. Demonstrate proficiency in business practices, salesmanship, groundskeeper and grower.

Review and feedback regarding of Student Learning Outcomes:

It was suggested last year that more native and drought tolerant plants be added to the Curriculum. Mr Brown stated that instructors have been incorporating the plants that are popular in the industry as much as possible. SLOs and are updated and assessed on a regular cycle usually re-done every 2 years. Lora Kellner suggested a 6 week pruning class.

Review and Feedback related to Core Indicators and Labor Market Information:

Up to date Core indicators from the State Chancellor website were not available for this meeting.

Overall Recommendations regarding program:

Certificate changes/Discussion/relevance-30 mins. The committee discussed the Horticulture Certificates. The consensus was that the certificates are up to date and current. Two courses need to be rewritten.

Additional Comments:

The advisory expressed concern that the College was not effectively supporting the program with Staff and funding and they are concerned about the frustration with the accreditation process and the damage it has caused to enrollments. The advisory expressed their pleasure that the Horticulture Reference library has had a great amount of time spent on it by Volunteer Members of SFPGA Celia Sisneros and her mother Connie. It is almost available to be open. It will be a reference library and only open with faculty present.

Planned action steps based on feedback:

The Chair is working to gather additional information that will be helpful to the advisory such as core indicators and completions from the CCCCCO. Two courses have not been rewritten and the department will also endeavor to bring them into currency. Consideration of a six week pruning class will also be researched.

Department Chair [signature] Date: 6/8/16

Advisory Members Present (Signature page should be kept in Department and School Offices) see attached.

Next Meeting Date 2017 Date: TBD Time: TBD

School Dean [signature] Date 6/21/16

VCAA [signature] Date
School of Fine, Applied, and Communication Arts

Welcome to the School of Fine, Applied, and Communication Arts

Please select your department of interest from the menu to your left. Our Dean will be happy to hear from you, and her contact information is on your right.

Mission

The School of Fine, Applied, and Communication Arts has a five-part mission:

- Teach the disciplines of critical thinking, creative, artistic expression and intelligent communication.
- Offer excellent instruction that fosters originality in the creative artist and enriches the understanding of both readers and audience members.
- Offer associate degrees and prepare students for transfer to baccalaureate institutions.
- Promote economic development by offering vocational training and certificates of achievement for students to enhance their careers.
- Enrich the City and our students' lives by cultivating their appreciation of beauty, their understanding of culture and providing lifelong learning of the highest quality.

Quick Links

Catalog
Class Schedule
Important Dates
Dean's Message

Contact Us

Kristina Whalen, Ph.D.
Dean
School of Fine, Applied and Communication Arts
50 Phelan Avenue - Arts 301
San Francisco, CA 94112
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Arielle Marcial Cantos
 Classified Support Staff
Phone: (415) 462-5110
Fax: (415) 462-5110
E-mail: amarcia@ccsf.edu
Events Calendar

Today: April 2016

Sun    Mon    Tue    Wed    Thu    Fri    Sat
27 28 29 30 31 Apr 1  2

3 4 5 6 7 8 9

"A Window to the World" Exhibit

CCSF Photography Department Gallery Exhibition: Space Oddity
4pm Block A

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30

"A Window to the World" Exhibit

"Chicago" at City College of San Francisco
4pm FACA D

Events shown in time zone: Pacific Time

Calendar
Environmental Horticulture

Environmental Horticulture is more than making the world around us a beautiful place. It's about creating environments that function practically, aesthetically, and in harmony with nature. Environmental Horticulture means growing the plants, designing the spaces and installing the landscapes.

It's working with people to maintain and improve the parks, gardens and spaces that make our communities great places to work and play. Environmental Horticulture is a diverse and satisfying field to make a career. And the field is growing!

Visit Environmental Horticulture

Retail Floristry

Opportunities for creative expression, a desire to work with a beautiful product, enjoyment of hands-on creativity, and a determination to make the most important moments in life truly special, are just a few of the reasons students choose to study floristry at City College of San Francisco.

Since the 1930's, students from the Floristry Division have launched satisfying careers in the "flower industry." giving the Environmental Horticulture and Floristry Department an impressive international reputation.

The Floristry Program offers a complete curriculum that maintains strong links with flower shop owners, growers, wholesalers and manufacturers, (many of whom are CCSF graduates).
In addition, the Department has a very active Student Chapter of the American Institute of Floral Designers, receiving numerous national awards for design excellence.

Visit Retail Floristry
Environmental Horticulture

CCSF student winners at the 2015 AIFD Symposium

The Environmental Horticulture program at City College offers a broad curriculum in a community-based program. The program maintains strong links with employers (many of whom are CCSF graduates) in both the private and public sectors.

Professional organizations such as the California Landscape Contractors Association, the California Association of Nurserymen, and the San Francisco Professional Gardeners Association recognize the Environmental Horticultural program and provide scholarship assistance for outstanding students.

Environmental Horticulture provides an ongoing placement service to its students, as well as referral to supervised internships such as those at Styling Arboretum and Filoli Estate.

The program offers excellent facilities, and a staff committed to student success.

Other program highlights include:
- Degree and certificate programs for varied interests and levels of commitment
- Individualized assistance in planning a course of study
- Superb greenhouse and nursery facilities
- A variety of Department and community-funded scholarships for motivated students
- A diverse student body and positive learning environment
- Work experience classes and strong links to employers in the community
- A number of A.S. degrees, Majors, and Certificates are available-check the College catalog for details.

Scholarships

Many scholarship opportunities are available in EHF and throughout City College. Here are some:
- City College Scholarship Office
EH Career Opportunities

A strong and increasing demand for individuals skilled in horticulture exists because of increasing standards for environmental quality, popularity of outdoor recreation, and the surging interest in gardening.

Our graduates work in private industry, the public sector, or for institutions like the City College. Others become self-employed or creatively combine their horticultural skills with current occupations to increase income and job satisfaction. Environmental Horticulture students go directly into careers and/or prepare for advanced degree programs such as Urban Forestry, Landscape Architecture and Horticultural Therapy.

Horticulture graduates enter careers in ...

- Greenhouse and Nursery Production
- Arboriculture (Tree Care)
- Landscape Design and Installation
- Residential and Estate Gardening
- Pest Control Specialist
- Irrigation Specialist
- Nursery Specialist / Propagator
- City Gardener
- Retail Nursery Sales
- Interiorscaping Design and Maintenance
- Golf Course Maintenance
- Park Supervision

See the Career and Technical Information pages for more information on these and other career options.
Environmental Horticulture and Floristry

Programs

Majors

Commercial Cut Flower
Floristry
Landscape Gardening and Landscape Contracting
Nursery and Garden Center Operations

Certificates

Environmental Horticulture Curricula

Gainful Employment Disclosure Data

Commercial Cut Flower & Greenhouse Production
Landscape Construction
Landscape Design
Landscape Maintenance
Nursery & Garden Center Operations

Environmental Horticulture

Credit, Degree Applicable Courses

O H 50. Introduction to Environmental Horticulture (3)
Lec-35, Lab-52.5, field trips
Overview of environmental horticulture: nursery and greenhouse production; landscape design, installation and maintenance. Career opportunities are explored in class and on field trips. Introduction to technical aspects including plant anatomy, soils and amendments, composting, plant propagation, pruning and transplanting, irrigation, landscape maintenance, pruning, pests, and tree care. UC/CSU

O H 53A. Beginning Landscape Horticulture (3)
Lec-35, Lab-70, field trips
ADVISE: OH 53A. OH 50 and completion/concurrent enrollment in OH 76 or 77
The principles and practices of garden planting and maintenance will be covered in practical laboratory experiences in the Horticulture Center and on the college campus. Care and maintenance of established gardens; irrigation, fertilizing, pruning, identifying and controlling weeds and plant pests and diseases. CSU

O H 53B. Advanced Landscape Horticulture (3)
Lec-35, Lab-70, field trips
This advanced course prepares the student to install and maintain new and established gardens. Course work will include, but is not limited to irrigation and sprinkler systems, drainage and erosion control, horticulture, maintenance estimates, proposals and agreements. Instruction in troubleshooting and supervising others will be included. CSU

O H 55. Tree Care (3)
Lec-35, Lab-52.5, field trips
ADVISE: PFIN Available
Care and management of trees common to residential, public, and commercial landscaping. Emphasizes correct planting, irrigating, fertilizing, pest control, and pruning. Use of saws, ropes, and other safety equipment in the tree industry is covered. Prepares student for the International Society of Arboriculture Certified Arborist Exam. CSU

O H 58. Horticulture Machines (3)
Lec-35, Lab-52.5, field trips
ADVISE: Completion/concurrent enrollment in O H 52
Field and shop practice in the safe and proper operation of necessary horticultural equipment. Preventative service and maintenance will be stressed during all lab and lecture sessions. CSU

O H 59. Greenhouse Operations (3)
Lec-35, Lab-52.5, field trips
ADVISE: O H 50, 55, and O H 76 or 77, or significant field experience
Overview of commercial greenhouse operations including materials and construction, heating and cooling systems, containers and greenhouse equipment. Management of...
growing medium, irrigation, fertilization, temperature, growth regulators, CO2, and light. Alternative cropping systems, post-production storage and handling discussed. Crops surveyed include foliage, cut flowers, potted flowering plants and bedding plants. CSU

O H 60. Business Practices in Environmental Horticulture (3)
Lec-52.5
Introduces students to the fundamentals required to run a horticultural enterprise. Addresses issues facing horticultural entrepreneurs as well as management challenges faced in larger horticultural businesses. Emphasis is on landscape related businesses. Guest speakers from landscape design and construction, landscape maintenance, arboriculture, consulting, restoration management, nursery operations and others. CSU

O H 63. Soils (3)
Lec-35, Lab-52.5, field trips
ADVISE: O H 50 or significant field experience
Introduces students to soils and growing media in Environmental Horticulture. Preparation and management of field and container soils. Soil composition and texture, soil chemistry, organic matter, colloids, soil structure, soil water and pH, plant nutrients and fertilizers, amendments, composting, beneficial soil organisms and diseases. Sustainable soil management practices. CSU
C-ID AG-P5 128L

O H 65. Plant Propagation (3)
Lec-35, Lab-52.5, field trips
ADVISE: Completion/current enrollment in O H 50 or demonstration of exit skills
Principles and practices of reproducing plants as commercially practiced in the horticulture industry. Topics include propagation by seed, and vegetative methods including cuttings, layering, division, grafting and micro-propagation. Field trips to local greenhouses and nursery operations. CSU
C-ID AG-EN 115L

O H 66. Irrigation (3)
Lec-35, Lab-52.5, field trips
ADVISE: O H 50 and 53A, or demonstration of exit skills
Basics of design, installation and maintenance of sprinkler and drip irrigation systems. Nursery and greenhouse irrigation discussed; emphasis on landscape irrigation. Topics include establishing hydrozones, backflow prevention, calculating pressure and flow requirements, system design and installation, equipment and fittings, automatic control systems and water conservation technologies. CSU

O H 70A. Principles of Landscape Design (3)
Lec-35, Lab-52.5, field trips
Lectures, reading assignments, and hands-on laboratory projects involving the principles of landscape design, especially as applied to residential properties. Graphic and drafting techniques are included. CSU

O H 70B. Advanced Principles of Landscape Design (3)
Lec-35, Lab-52.5, field trips
ADVISE: O H 70A
The process of advanced landscape design. Emphasis on three dimensional visualization using the Sketchup program. Irrigation and lighting plans, permaculture and sustainability principles, the making of models, use of brush and ink and hands-on work of design-build projects. CSU

O H 71A. Landscape Construction (4)
Lec-35, Lab-105, field trips
Principles of landscape construction applicable to horticulture. Safety, tools, hardware, lumber, fences, gates, benches, decks, steps, paint, concrete, blocks, stone walls, and other physical aspects of landscape construction are presented. CSU

O H 71B. Advanced Landscape Construction (4)
Lec-35, Lab-105, field trips
Advanced principles of construction for the landscape from design to installation. Advanced irrigation projects involving copper pipe cutting, pipe fitting and soldering. Irrigation valve placement and means of back-flow prevention, irrigation clock wiring design and installation. Designing and building fences, gates, benches, decks and steps. Advanced concrete and masonry projects. CSU

O H 75. Pest Management (3)
Lec-52.5, field trips
ADVISE: O H 50 or significant field experience
An overview of pest management in landscape, greenhouse, and nursery operations; introduction to the identification, life cycles and damage of flies, weeds, insects, mites, fungi, bacteria, viruses, soil-borne nematodes and mammal pests. Emphasis on integrated Pest Management, Cultural, mechanical, biological and least-toxic chemical techniques, legal requirements and safety. Preparation for Certified Applicator Certificate. CSU

O H 76. Fall and Winter Plant Identification (4)
Lec-70, field trips
Identification of approximately 150 ornamental plants commonly used in the San Francisco Bay Area for Fall and Winter bloom, fruit, or foliage. Covers basic plant anatomy and terminology used in the taxonomic classification of plants. Emphasis is on cultural requirements, habits of growth and landscape use of plants. UDCSU

O H 77. Spring and Summer Plant Identification (4)
Lec-70, field trips
Identification of approximately 150 ornamental plants commonly used in the San Francisco Bay Area for Spring and Summer bloom, fruit, or foliage. Covers basic plant anatomy and terminology used in the taxonomic classification of plants. Emphasis is on cultural requirements, habits of growth and landscape use of plants. UDCSU

O H 91. Independent Study (1)
Lab-52.5, field trips P/NP Available
PREREQ: 6 units of O H course work and project approval
Individual research on a special topic in environmental horticulture. Opportunity for students to investigate horticultural problems of special interest or conduct an in-depth project. Emphasis on practical application and current issues in horticulture. CSU

O H 92. Independent Study (2)
Lab-105, field trips P/NP Available
PREREQ: 6 units of O H course work and project approval
Individual research on a special topic in environmental horticulture. Opportunity for students to investigate horticultural problems of special interest or conduct an in-depth project. Emphasis on practical application and current issues in horticulture. CSU

O H 93. Independent Study (3)
Lab-157.5, field trips P/NP Available
PREREQ: 6 units of O H course work and project approval
Independent research on a special topic in environmental horticulture. Opportunity to investigate horticultural problems of special interest or conduct an in-depth project. Emphasis on practical application and current issues in horticulture. CSU
O H 97. Work Experience (2-4)
Lec-17.5, work-65.225
ADVISOR Completion of or concurrent enrollment in a floristry or horticulture course and/or approval of the EMF Dept work experience coordinator
Repeat max. 12 units
Field application of principles taught in horticulture classes. A supervised work experience program with cooperating employers, providing hands-on experience and transition into commercial practice. Students acquire job experience in their chosen field of horticulture. Preparation of portfolios and resumes. Career development skills and practical workplace skills related to horticulture industry. CSU

O H 191. Garden Practices (3)
Lec-52.5 PNP Available
Topics include basic tools, soil, composting, planning a garden adapted to microclimate, plant selection, seed germination, transplanting, watering and water conservation, integrated pest management, maintenance and pruning. Plants discussed will include annuals, bulbs, perennials, groundcovers, lawns, shrubs, trees, vegetables, drought-tolerant plants, and houseplants. Appropriate for all interested in gardening. CSU

O H 111A. Year-Round Garden Color (1)
Lec-17.5, field trips PNP Available
Includes selecting and planting colorful, harmonious combinations of annuals, perennials shrubs and trees. Multicolored planters will be created in class. A selected garden with year round color will be visited. CSU

O H 111B. Growing Orchids (1)
Lec-17.5, field trips
Cultural needs of individual orchids, including materials needed and how to grow, pot, divide and water many different kinds of orchids. Troublesome ailments, diseases and pests coupled with solutions and cures. CSU

O H 111C. Container Gardening (1)
Lec-17.5, field trips PNP Available
Introduction to use and care of landscape container plantings, design considerations, container types, installation and maintenance practices unique to container culture, and plant materials well suited to use in containers, for both commercial and residential settings. CSU

O H 111D. Introduction to Xeriscaping (1)
Lec-17.5 PNP Available
Advisory: O H 50
Theory and practice of water conservation in the landscape through the use of drought tolerant plants, efficient irrigation and appropriate design. CSU

O H 111F. Vegetables & Herbs: Spring (2.5)
Lec-33, Lab-35, field trips PNP Available
PREREQ: O H 50 or 101
Academic study and hands-on gardening experience in planting a productive spring vegetable and herb garden. Crop names in botany and in seed catalogs. Buy seed, start crops from seed, select and save seeds. Emphasis on crops in the lettuce, carrot and beet families, and integrated pest management. CSU

Floristry

Credit, Degree Applicable Courses

50 Phelan Avenue, San Francisco, CA. 94112 (415)239-3000
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Accredited by the Accrediting Commission for Community and Junior Colleges of the Western Association of Schools and Colleges
Commercial Cut-Flower and Greenhouse Production Major

Students who satisfactorily complete the Curriculum in Commercial Cut-Flower and Greenhouse Production, a two-year course of study, are qualified for employment in the cut-flower and greenhouse production industries in the following capacities: cut-flower grower, groundskeeper, flower shipper, plant propagator, plant salesperson, and pot-plant grower.

The course of study includes instruction in commercial cut-flower and greenhouse production, principles of environmental horticulture, plant identification, the use of horticultural machines, and business practices in the environmental horticultural industry.

Students who complete the curriculum and other graduation requirements receive the Associate in Science in Commercial Cut-Flower and Greenhouse Production.

Courses Required for the Major in Commercial Cut-Flower and Greenhouse Production

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
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<tbody>
<tr>
<td>First Semester</td>
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<tr>
<td>O H 50 Intro to Horticulture</td>
<td>3</td>
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<tr>
<td>O H 56 Horticulture Machines</td>
<td>3</td>
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<tr>
<td>O H 76 Fall &amp; Winter Plant Ident</td>
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<td>Additional graduation requirements</td>
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<td>Second Semester</td>
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<tr>
<td>O H 58 Comm Cut-Flower &amp; Greenhouse Prod</td>
<td>3</td>
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<tr>
<td>O H 77 Spring &amp; Summer Plant Ident</td>
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<td>R F 81 Flower &amp; Foliage I.D. &amp; Care</td>
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<td>Additional graduation requirements</td>
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<td>Third Semester</td>
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<td>O H 63 Soils</td>
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<td>O H 65 Reprod of Ornamental Plants</td>
<td>3</td>
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<td>SPCH 11 Basic Public Speaking</td>
<td>3</td>
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<tr>
<td>R F 82 Indoor Plant I.D. &amp; Care</td>
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<td>Additional graduation requirements</td>
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<td>Fourth Semester</td>
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<td>O H 60 Bus Practices in Environ Horticulture</td>
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<td>O H 75 Pest Control</td>
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<td>O H 97 Wk Exper</td>
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<tr>
<td>O H 70A Landscaping Design</td>
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<td>or O H 71A Landscape Construction</td>
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<td>Additional graduation requirements</td>
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<tr>
<td>Total Units</td>
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</tbody>
</table>

Recommended electives: ACCT 10, SMBS 135
Department SLO Assessment Process

The Environmental Horticulture/Floristry Department's assessment process outline:

- Faculty who teach the same class meet several times per semester and agree on a consistent process and assessment tools to continually assess and improve learning outcomes. Faculty who teach unique classes create their own processes and assessment tools.
- Our faculty continually refine their processes and tools allowing each instructor to use the most appropriate and effective tools and processes to assess their Student Learning Outcomes, while at the same time remaining within a framework that allows us to collect, compare and discuss individual and department teaching practices.
- The collected data are reviewed amongst faculty with an eye for improvements where appropriate.
- Summaries of data and analyses and review are discussed in department meetings.
- Annually, the overall impacts of SLO assessments are reviewed by the department chair and summarized in the annual program review document.
Horticulture SLO

Course major learning outcomes for Horticulture courses follow:

Catalog Listings:

OH 10 Introduction to Environmental Horticulture
Upon completion of this course a student will be able to:
1. Identify the various disciplines in the field of environmental horticulture, and describe career opportunities in each of these areas.
2. Describe how landscape designers, architects, contractors and maintenance personnel interact professionally. Identify the legal, professional and personal requirements to pursue a career in these fields.
3. Analyze the factors which affect success in the fields of nursery and greenhouse operations. Discuss the experience and education required for a career in production or sales. Describe advantages and disadvantages of careers in these fields.
4. Identify the major anatomical systems of a growing plant, and discuss their functions and requirements, especially as they relate to commercial production and maintenance.
5. Describe the composition and function of soil and other growing media as they relate to the culture of environmental plants. Identify and describe the uses of various amendments and fertilizers commonly used in horticultural soils.
6. Identify the various methods of plant propagation and describe their appropriate use. Demonstrate techniques used commercially in the propagation of plants by seed and cuttings.
7. Discuss or demonstrate the methods employed in landscape installation and maintenance including proper tool use, planting, staking of trees, turf maintenance, pruning, irrigation and composting.
8. Describe the principles of Integrated Pest Management, and give examples of IPM practices employed to control pests of the greenhouse, nursery and landscape.

OH 53A. Landscape Horticulture
Student learning outcomes will include:
1. Have a basic understanding of the various job opportunities in landscape maintenance.
2. Have an understanding of the historical significance of horticulture on the development of societies.
3. Property use and maintain gardening hand tools.
4. Properly use and maintain common garden power equipment.
5. Know how to use sod, soil amendments, and fertilizers in the landscape.
6. Properly plant trees, shrubs, and groundcovers. As well as the proper method for staking and guy'ing trees.
7. Have a basic understanding of garden pests and pesticides.
8. Have a basic understanding of weeds and their control through the use of herbicides.
9. Know the proper procedure for installing a lawn (and for maintaining the lawn).

OH 53B. Landscape Horticulture
Student learning outcomes shall include:
1. Design and install a sprinkler irrigation system.
2. Design and install a comprehensive underground garden drainage system.
3. Have an understanding of water conservation and to be able to apply that understanding to use less irrigation water in existing and newly designed gardens.
4. Prepare monthly garden maintenance schedules.
5. Be able to estimate the amount of time it will take to perform certain common landscape maintenance jobs.
6. Be able to prepare a proposal and agreement for performing garden maintenance services.

OH 54. Turfgrass Management
Upon completion of the course, students will be able to:
1. Describe landscape situations indicating the use of turfgrass, citing the advantages and disadvantages of turf in the landscape.
2. Identify major species of turf-type grasses. Describe their characteristics with regard to use, growth characteristics and cultural requirements.
3. Describe considerations in choosing and preparing a site for sod, sod or hydroseed.
4. Demonstrate the skills used in planting a seed lawn and establishing new sod.
5. Demonstrate use and care of equipment used for mowing, edging, thatch removal, aeration and sod removal. Discuss the factors to consider in carrying out these operations.
6. Describe procedures for establishing accurate, water-conserving irrigation of turf. Select irrigation equipment appropriate for various turfgrass settings.
7. Describe proper fertilization of established turf, including the types of fertilizers and equipment for their application.
8. List and describe the steps in renovating old turfgrass.
9. Identify common disease and insect pests of turf, and discuss means of controlling pests.
10. Identify common broadleaf and grass weeds in turf, and discuss means of controlling them.
11. Describe special procedures associated with care of the following: golf greens and tees, fairways, and baseball fields, conventional athletic fields, baseball diamonds.
12. Use professional publications and periodicals to update knowledge in the field.
13. Make direct observations of industry practice and apply as appropriate.

OH 55. Tree Care
At the conclusion of this course, the student will be able to:
1. Demonstrate the ability to plant and care for ornamental trees.
2. Correctly stake, irrigate, and fertilize established ornamental trees.
3. Prune, brace, cable, and treat cavities in trees safely.
4. Use safety equipment and professional techniques of climbing or scaling trees common to arboriculture.
5. Identify tools and techniques used in tree care.
6. Demonstrate ability to safely use tools common to the Arbor craft, including saws, loppers and pruning shears.

OH 56. Horticulture Machines
Demonstrate the safe and proper use of the following horticultural equipment:
1. Rotary mower
2. Front-throw mower
3. Lawn edger
4. Blower
5. Vertical
6. Generator
7. Sod cutter
8. Aerator (plugger)
9. Hedge shears
10. Taylor truck
11. Rototiller (small & large)
12. Power sprayer
13. Molt hammer knife
14. Trencher
15. Post-hole digger
16. Chainsaw
17. Cement mixer
18. Weed eater
19. Shredder
20. Small trailer (bucket)
21. Lawn vacuum
22. Demonstrate the proper lubrication techniques of the above listed horticultural equipment.
23. Identify and briefly explain the best use of each of the above listed horticultural equipment.
24. Recognize and explain the four-cycle and two-cycle engine principles.
25. Identify the basic parts of and explain how each of the following systems work:
   a. Carburetion
   b. Ignition
   c. Lubrication
   d. Cooling
   e. Identify the model of engine and look up various parts needed in the parts catalog.
   f. Demonstrate the proper and safe techniques of:
      i. Changing an edger blade
      ii. Adjusting a chain (master link)
      iii. Changing a belt
      iv. Patching a flat tire
      v. Changing oil
      vi. Cleaning an air filter
      vii. Sharpening a rotary mower blade
      viii. Mixing two-cycle fuel
      ix. Cleaning and gapping a spark plug
      x. Cleaning a four-cycle cooling system

OH 67A. Wholesale Nursery Operations
Upon completion of this course, students will be able to:
1. Describe the modern nursery trade in terms of consumer demands, marketing trends and use of technology.
2. List factors to be considered when scheduling propagation and prepare a production plan for a nursery crop.
3. Identify and explain the use of various nursery growing structures and facilities.
4. Demonstrate the use of equipment used in nursery production. Identify and describe the use of industry-standard containers used in the production and sale of nursery crops.
5. Compare and contrast container production with the field production of nursery crops.
6. Explain the standard methods of harvesting and shipping field-grown nursery stock.
7. Discuss the preparation and management of growing media used in the production of container stock.
8. Describe industry standard methods of irrigating nursery crops, including techniques for conserving water and managing runoff/greenwater.
9. Explain the various methods used to manage and direct growth of nursery plants, including cultural, mechanical and chemical methods.
10. Describe methods of weed, insect and disease control, as it applies to the wholesale nursery, emphasizing the use of integrated, least-toxic methods.
11. Discuss the management of virus in the production of nursery stock.
12. Explain procedures for harvesting, storage and shipping nursery stock, and recommend care for plants once they reach the retailer.
13. Discuss factors to be considered when selecting a site for a nursery.
14. Compare organizational structures of a variety of nurseries, explaining advantages and disadvantages of each.
15. Give examples of AAN standards for nursery products.
17. Discuss local, state and federal laws and regulations which apply to the production and transportation of nursery stock. Explain how those laws influence local growers and their markets.
18. Explain the concept of niche marketing, and describe how it is applied to the wholesale nursery business in the Bay Area.
19. Use professional publications and periodicals to update knowledge in the field.

OH 57B. Retail Nursery Operations
Upon completion of the course, students will be able to:
1. Identify and describe the plants listed for California Association of Nurserymen’s Certification Exam.
2. Display working knowledge of retail nursery operations and sales techniques as described in CAN training materials.
3. Demonstrate familiarity with the most common concerns of retail nursery customers, and the ability to effectively meet their needs.
4. Discuss marketing and merchandising strategies and methods as they apply to retail nursery operations, including educating customers, advertising, sales skills, store layout and display, and signage.
5. Discuss retail nursery management strategies and methods including pricing, personnel management, security, computer usage, financial management and business management.
6. Compare the benefits of being an employee with those of being an employer.
7. Discuss the requirements for establishing and maintaining a retail nursery business.
8. Compare and contrast the various types of retail nursery businesses including single store, large chain, small chain, mailorder/catalog, mass merchant, and specialists.
9. Explain the regulatory requirements which must be met to operate retail nursery operations in the State of California.
10. Use professional publications and periodicals to update knowledge in the field.

OH 58. Greenhouse Operations
Upon completion of the course, students will be able to:
1. Discuss the historical development of the greenhouse/floral industry, and identify current trends which will influence production and markets in the years ahead.
2. List and describe the qualifications for six jobs requiring skilled workers in greenhouse production and allied fields.
3. Compare the various types of greenhouses, identifying the main structural components, and give advantages and disadvantages of each.
4. Discuss the factors to consider when locating a greenhouse, including climate, labor, transportation, runoff control, water supply and orientation.
5. Identify and compare the various greenhouse covering materials with regard to light transmission, heat transmission, durability, ease of maintenance and cost.
6. Discuss the options available to growers with regard to greenhouse benches and beds.
7. Take measurements for and calculate greenhouse volumes, bench areas, space utilization efficiencies, heating requirements and other-construction-related needs.
8. Explain the three modes of heat transfer, and give examples of how each act in the greenhouse environment.
9. Describe and compare the various systems available for heating greenhouses including hot water, steam, unit heaters (gas), inside-rod, solar, and bench-top.
10. Describe and compare the various greenhouse heating and cooling systems including roof and sidewall vents, fans, vents, fans and pad cooling, fog cooling, thermal blankets, and shading.
11. Discuss the use of HAF fans and convection tubing in maintaining greenhouse temperatures and air flow.
12. Identify temperature management problems which arise on a seasonal basis.
13. Discuss the advantages of automated temperature controls and computerized systems in the greenhouse.
14. Determine relative humidity in a greenhouse, and list ways of raising or lowering RH.
15. Identify at least six ways of conserving heat in greenhouse operations.
16. Compare the various container types available to growers for producing foliage, bedding plants, and flowering pot plants.
17. Calculate the required seed, number of containers, volume of growing medium, and corresponding bench space required to grow a particular crop for a given order of finished product.
18. Prepare two types of growing mediums. Give characteristics of 8 media components used in the industry for production of greenhouse crops.
19. Explain 3 methods of obtaining pathogen-free growing media.
20. Identify the functions and desirable properties in a root medium.
21. Specify the factors which contribute to good water quality from the standpoint of the greenhouse grower.
22. Explain how to monitor watering and nutrient levels, and how a crop’s water and fertilizer requirements changes as it matures.
23. Diagram and explain 3 different kinds of automatic watering systems.
24. Describe fertilizer usage, expressed in ppm, for a greenhouse crop at different stages of development.
25. Supply all the recommended rate of application and the fertilizer ingredients, calculate the dilution rate for a given fertilizing.
26. Describe the special fertilizer requirements when using soilless growing media.
27. Give advantages and disadvantages for 3 types of “alternative” cropping systems. Explain the use of Dutch trays.
28. Analyze how growth rate is affected by varying day and night temperatures given certain light levels.
29. Relate the roles of photosynthesis and respiration to these variations.
30. Explain methods of enhancing CO2 levels in the greenhouse and identify a situation in which CO2 injection becomes economical.
31. Discuss methods of growth regulation including pinching, chemical regulation, and temperature control.
32. Explain what is meant by DIF and how it is applied to control crop height.
33. Define photosynthetically active radiation and demonstrate how to measure the light intensity levels necessary for greenhouse production.
34. Discuss methods of supplying supplemental light, and situations in which its use is economical.
35. Explain the role of photoperiodism in the production of major floral crops.
36. Identify pest-management problems unique to greenhouse growing.
37. Organize a management plan to control three common greenhouse insect pests and three common diseases including one soil-borne and one air-borne disease.
38. Discuss the appropriate post-production handling of foliage plants, bedding plants and flowering pot plants.
39. Recommend practices for the commercial harvest and storage of cut flowers, including special procedures for bud harvesting and dry storage.
40. Identify 5 causes of cut flower death, and give at least 4 steps for improving the vase life of cut flowers.
41. Give examples of grading, packaging, or shipping standards for at least two greenhouse crops.
42. Discuss the role of the nurseryman, wholesaler, and broker in the marketing and distribution of floral crops.
43. Differentiate between the floral marketing systems in the U.S. and Europe.
44. Use professional publications and periodicals to update knowledge in the field.
45. Make direct observations of industry practice and apply as appropriate.

Ohio 60. Business Practices in Environmental Horticulture
Upon completion of this course the student will be able to:
1. Submit a proposed operating budget for a small landscape business
2. Demonstrate three good salesmanship characteristics
3. Demonstrate good accounting (income & expenses) techniques for a small business
4. Know the names and phone numbers of various landscape trade associations
5. Know the names and addresses of various business services and trade publications
6. Identify three characteristics of good employees
7. Identify which form of business ownership will be best for his or her business
8. Identify which (outside) professional services will best help to resolve his/her business problems
9. Know the tax consequences and responsibilities of owning a business
10. Know some of the many insurances that one needs to consider when owning a business

Ohio 63. Soils
Upon completion of the course, students will be able to:
1. List factors contributing to soil formation, and identify soil horizons.
2. Describe the composition of different kinds of soils.
3. Explain how different plants grow in different soils.
4. Identify the texture of different soils, both by hand and by laboratory procedures, and explain how texture affects soil performance.
5. List the macro and micro nutrients found in soil.
6. Identify organic and inorganic compounds important in soil chemistry.
7. Differentiate between ionic and covalent bonding, and explain the role of these bonds in fertilization.
8. Discuss what affects soil pH and demonstrate how to measure pH.
9. Measure the level of specific ions in soil, and express in either ppm or millequivalents.
10. Discuss the origin and effects of organic matter in soils.
11. Discuss the processes of soil formation and mineralization.
12. Explain the functions of humus in soils, and list practical ways of improving humus content in soil.
13. Identify the factors that affect soil composition, and describe procedures for managing these problems.
14. Demonstrate procedures for taking and shipping accurate soil samples, both from the field and from the greenhouse.
15. Describe the nature and roles of soil colloids, including clays and humus.
16. Explain the movement of cations and anions in soil, and relate how cation exchange capacity is measured.
17. Explain the factors that affect soil structure, and link soil structure to plant growth characteristics.
18. Discuss ways which can be taken to protect and improve soil structure.
19. Demonstrate how to measure air filled porosity and bulk density.
20. Describe infiltration and water movement in soils as a function of soil texture.
21. Define nutrient percentage, field capacity, and permanent wilting point, and identify the factors that affect the water capacity of soils.
22. Explain the effects of high and low pH levels on plants, and discuss methods for managing pH both in the field and in the greenhouse/nursery. Demonstrate methods for measuring pH and EC field and container soils.
23. Identify the symptoms of toxicity and deficiency for the major plant nutrients, and minor nutrients including iron, manganese, and boron.
24. Compare major sources of plant nutrients, both organic and inorganic, and identify the most appropriate uses of each.
25. Calculate nutrient content and application rates.
26. Demonstrate the use of various types of equipment for applying fertilizer to the landscape or to a nursery crop.
27. Discuss the factors that contribute to successful composting, and construct a "hot" compost pile using typical landscape residue.
28. Identify organisms which live in the soil, and describe how they affect perennials, including the process of nitrogen fixation.
29. Describe techniques for encouraging beneficial organisms and managing soil pests and diseases.
30. Describe efficient watering strategies for landscape, nursery and greenhouse production, including the use of evapotranspiration measurements and water audits.
31. Outline the steps to best manage soils in a large landscape construction project, including grading, construction of drainage systems, and planting.
32. Identify lab sources of soil, water and plant tissue testing, and interpret the results of a lab report.
33. Utilize and interpret soil surveys, and recognize the major soil types in the San Francisco Bay Area.
34. Use professional publications and periodicals to update knowledge in the field.
35. Make direct observations of industry practice and apply as appropriate.

Ohio 65. Plant Propagation
Upon completion of the course, students will be able to:
1. Explain the goals of plant propagation, and list four factors to consider in choosing a method of propagation.
2. Contrast and compare asexual methods of propagation (vegetative) with sexual methods (seed).
3. Describe the processes of meiosis and mitosis, and explain the significance of each with regard to plant propagation.
4. Explain the process of producing hybrid seed.
5. Differentiate between the following types of seed: open pollinated lines, F1, F2, hybrid lines, and interline types.
6. Discuss and apply the factors to consider when collecting and storing seed for propagation.
7. Demonstrate methods for testing seed viability, stratification, and cold stratification.
8. Compare the various materials available for preparing germinating media, and demonstrate the proper preparation of seedling media.
9. Explain the environmental factors that affect germination.
10. Demonstrate correct techniques for sowing seed by hand and by machine, and for preparing and transplanting seedlings once
11. Explain the phenomenon of totipotency and how it affects plant propagation methods.
12. Explain the anatomic and physiological basis of vegetative propagation and list the sources of clones.
13. Compare the advantages and disadvantages of using vegetative propagation methods.
14. Examine the problems associated with virus and MILs, and explain how they are treated.
15. For the following types of stem cuttings, explain their use, give examples of plants propagated by them, and demonstrate the proper preparation and handling techniques: deciduous and evergreen hardwood, semi-hardwood, evergreen, softwood, herbaceous.
16. For the following types of cuttings, explain their use, give examples of plants propagated by them, and demonstrate the proper preparation and handling techniques: leaf, leaf-petiole, leaf-bud and root.
17. Explain at least six factors which must be considered when harvesting and storing plant material to make cuttings.
18. Prepare and evaluate the various materials available for propagating rooted media.
19. Demonstrate the proper preparation, storage, handling, and use of rooting media.
20. Explain the role, and demonstrate the use of the following materials and equipment used in the production of cuttings: fertilizers, special growing structures, containers, mist systems, bottom heat.
21. Explain the applications for layering, and identify the various types of layering methods.
22. Demonstrate the proper use of one type of layering.
23. Explain the applications for separation and division, and identify the various plant structures associated with these methods.
24. Demonstrate the proper use of one type of separation or division.
25. Explain six situations in which grafting or budding would be an appropriate choice of propagation method.
27. Discuss the causes and characteristics of graft incompatibility, and the use of interstock to overcome these problems.
28. Demonstrate and explain the proper methods of propagating plants by grafting, including splice, whip and tongue, side tongue and side veneer, cleft, and bark grafts.
29. Discuss the environmental factors which affect the success of grafts, and the aftercare of grafts require to develop into a finished product.
30. Differentiate between fall, spring, and June budding, and demonstrate the correct technique for making T-buds and shield buds.
31. Explain the formulas for making T-buds, and the relative advantages and disadvantages.
32. Identify the use of equipment and materials needed for micro-propagation.
33. Explain the basic procedures common to all types of micro-propagation.
34. Discuss the common disease problems encountered in plant propagation, and how they should be managed.
35. Explain the aftercare of propagules, and the steps necessary to bring them in to production.
36. Schedule propagation for the efficient production of plants.
37. Use professional publications and periodicals to update knowledge in the field.
38. Make direct observations of industry practices and apply as appropriate.

**OH 58. Irrigation**

Upon completion of the course, students will be able to:
1. Discuss the effects of water quality on irrigation.
2. Identify differing hydrozones in a landscape, and choose irrigation appropriate for each of those zones.
3. Calculate estimated water use for a given landscape design.
4. Cite the legal and code requirements to consider when designing and installing drainage and irrigation systems.
5. Identify landscape drainage requirements; identify and install basic drainage equipment according to a landscape plan.
6. Determine pressure and flow requirements of various irrigation systems.
7. Design a medium size residential irrigation system including sprinkler and drip circuits.
8. Demonstrate proper techniques for fitting and installing irrigation pipe in PVC and copper.
9. Identify and demonstrate the appropriate use of sprinkler heads, valves, backflow prevention devices, anti-drain valves, emitter devices, and other common irrigation equipment.
10. Interpret and prepare a bid based on, a blueprint irrigation design.
11. Demonstrate the installation and operation of a variety of automatic irrigation controllers.
12. Discuss the use of special irrigation equipment to conserve water in the landscape.
14. Demonstrate troubleshooting procedures for identifying problems with installed irrigation systems.
15. Demonstrate common repair procedures for valves, pipe, fittings, and sprinkler heads.
16. Discuss irrigation systems used in wholesale nursery and greenhouse operations, identifying the requirements of such systems.
17. Use professional publications and periodicals to update knowledge in the field.

**OH 75A. Principles of Landscape Design**

Upon completion of this course, the student will be able to:
1. Use basic drafting tools with skill and proficiency.
2. The student will be able to intelligently read, understand, present, and justify his/her designs to his fellow students and instructor.
3. The student will be able to answer questions related to the history of landscape design.
4. The student will be able to construct a small scale model of a proposed residential garden landscape.
5. The student will be cognizant of the various materials (both natural and man-made) used in landscape design.
6. The student will be able to use the media of color pencils to render a blueprint.
7. The student will know the process needed for them to prepare a cost estimate for the proposed garden design improvements.

**OH 75B. Advanced Principles of Landscape Design**

1. Upon completion of this course the student will be able to prepare a landscape design of good quality.
2. The student will be able to prepare schematic landscape "working drawings". This includes the preparation of a grading plan, a drainage plan, a planting plan, an irrigation plan, a lighting plan, a planting plan, and construction details.
3. The student will be able to estimate quantities of materials and the costs of construction (for a residential type garden installation).

**OH 71A. Landscape Construction**

1. Upon completion of this course the student will know and practice proper safety habits on the job.
2. The student will use hand and power equipment safely.
3. The student will know when and how to use various fasteners.
4. The student will know the various grades of redwood and fir lumber.
5. The student will be able to layout and construct wood fences on level and sloping topography.
6. The student will be able to construct garden gates and benches.
7. The student will be able to build garden steps.
8. The student will be able to select and apply various types of paints and or stains.
9. The student will be able to properly mix and finish concrete for footings, paving, and low garden retaining walls.
10. The student will be able to construct stone walls for landscape retaining. This includes knowing how to place steel reinforcing bars.

OH 748. Landscape Construction
The course objectives shall include the students' ability to:
1. Build masonry walls, moving strip, piers, and patios
2. Successfully slope grades to provide positive surface and subsurface drainage and connect drainage pipes and fittings
3. Design and install an underground irrigation system
   a. Compute friction loss for pipe sizes
   b. Be familiar with various types of sprinklers
   c. Identify various plumbing fittings and valves
4. Install a garden fountain or pond with re-circulating pump
5. Use the transit or builder's level for surveying and garden construction.
6. Be familiar with the basic business criteria of landscape construction.
   a. Mechanic's lien, and stop notices
   b. Prepare a typical "Agreement for Landscape Services"
   c. Record keeping
7. Be able to read architecturally prepared working drawings which describe the designer's intent.
8. Know where, (in the bay area), one can rent construction equipment and buy landscape building materials.
9. From a set of plans, be able to estimate the cost of the job.

OH 75. Pest Control
Upon completion of the course, students will be able to:
1. Explain the principles of integrated Pest Management and give examples of how they apply in the fields of landscape maintenance, greenhouse production and nursery operations.
2. Identify common Bay Area weeds and the types of damage they do.
3. Relate the life cycles of weeds and their anatomy to principle methods of weed control.
4. Identify common pest and beneficial insects and mites, and explain how they affect ornamental plants.
5. Relate the life cycles of insects, and insect anatomy, to integrated methods of pest control.
6. Identify symptoms of plant diseases, and discuss the various causal organisms including fungi, bacteria and virus.
7. Explain various methods of disease control in ornamental plants including cultural, biological and chemical approaches.
8. Discuss the life cycles and damage to ornamental plants of important mites, nematodes and vertebrate pests. Explain effective control measures for the same pests.
9. Explain the appropriate use of the three major types of biological pest control.
10. Discuss the common types of pesticides and their toxicological characteristics.
11. Identify different pesticide formulations and the advantages and disadvantages of each.
12. Integrate a pesticide label, including signal words, EPA Establishment and Registration numbers, Precautionary Statements and Re-entry Statements.
13. Cite and explain laws and regulations governing worker safety and training, and regulations governing proper handling, transportation and use of pesticides.
14. Cite and explain the importance of laws and regulations governing environmental safety and full use reporting.
15. Demonstrate the proper use of pesticide application equipment.
16. Demonstrate the proper calibration of a power sprayer and a backpack sprayer.
17. Demonstrate mastery of terminology unique to current pest-control literature.
18. Demonstrate techniques for sampling and preserving pest and beneficial species for purposes of monitoring and identification.

OH 78. Fall and Winter Plant Identification
Upon completion of this course a student will be able to:
1. Correctly identify 50 species of woody and herbaceous plants commonly used in Bay Area landscapes, providing common name, botanical name, and family for each plant.
2. Identify appropriate landscape use, cultural requirements and growth characteristics of the above mentioned plants, and apply this information to practical landscaping situations.
3. Demonstrate techniques for preserving and documenting fresh plant samples.
4. Demonstrate knowledge of horticultural taxonomic systems, including major and minor taxa.
5. Understand and employ taxonomic terminology relating to the types and structure of plant foliage, stems, roots, flowers, inflorescences, fruit and seeds.
6. Employ analytical techniques applied to plant identification including use of dichotomous keys.

OH 77. Spring and Summer Plant Identification
Upon completion of this course a student will be able to:
1. Correctly identify 50 species of woody and herbaceous plants commonly used in Bay Area landscapes, providing common name, botanical name, and family for each plant.
2. Identify appropriate landscape use, cultural requirements and growth characteristics of the above mentioned plants, and apply this information to practical landscaping situations.
3. Demonstrate techniques for preserving and documenting fresh plant samples.
4. Demonstrate knowledge of horticultural taxonomic systems, including major and minor taxa.
5. Understand and employ taxonomic terminology relating to the types and structure of plant foliage, stems, roots, flowers, inflorescences, fruit and seeds.
6. Employ analytical techniques applied to plant identification including use of dichotomous keys.

OH 91, OH 92, OH 93 Independent Study
Upon completion of the course, students will be able to:
Horticulture SLO

1. Conduct a project of his/her own design, dealing with a problem of special interest in the field of ornamental horticulture.

2. Summarize and evaluate the results of a project, as they apply to the field.

OH 97. Work Experience

1. Prepare a job application in a professional manner.
2. Prepare a resume in a professional manner.
3. Identify and organize a set of short-term and long-term career goals and objectives.
4. Explain common work-place skills required for success in the work environment.
5. Demonstrate job interview skills appropriate to the student's chosen field.
6. Demonstrate completion of personal objectives relating to the student's specific workplace.

*Students will complete all objectives as they complete additional units in Work Experience. Not all objectives will necessarily be met every semester. Students will plan with instructor on an individual basis to complete all objectives in a timely manner as the Work Experience requirement for the Award of Achievement is satisfied.

OH 101. Garden Practices

The student will:

1. Be able to identify and demonstrate the proper use of 15 basic gardening tools and materials.
2. Be able to describe the requirements for plant growth, from germinating seed through flowering and fruit production and explain how good garden practices help plants obtain what they need.
3. Be able to explain the meaning of the plant classifications of family, genus, species, and variety, giving examples and explaining the use of scientific names.
4. Be able to assess soil physical qualities and fertility, using soil tests and/or direct observation, and be able to improve soil when needed. Be able to carry out home composting to produce soil amendment and fertilizer from waste.
5. Be able to choose plants and layout a garden with regard to local soil and topographical features, climate, and microclimate.
6. Demonstrate techniques of seed germination and transplanting, as appropriate for starting seeds and plants indoors and in the garden.
7. Select water-conserving plants, garden designs, and watering systems.
8. Explain the special needs of plants growing in containers, and how to meet them.
9. Choose and integrate methods of pest control appropriate for a variety of garden settings and types, using least-toxic methods and using pest control chemicals legally and safely.
10. Describe basic use and care of a variety of types of plants.
11. Demonstrate basic garden maintenance skills, including pruning.

OH 102. Greenhouse Crops

Upon completion of the course, students will be able to:

1. Describe market conditions for locally grown greenhouse crops, and identify current trends in floriculture production.
2. Analyze the factors which contribute to the economic success of specific floral crops. Relate these factors to production and marketing trends in California, Europe and South Central America.
3. Discuss selected foliage plants, cut flowers, and flowering pot plants, explain the important elements of propagation, culture, pest control, post-harvest handling, marketing, and consumer care.
4. With regard to the same crops, demonstrate the practical skills common to their propagation, culture, pest control and post-harvest handling.
5. Solve quantitative problems which arise in the planning, production and marketing of selected greenhouse crops, including crop planning and scheduling, pesticide and growth regulator application, determining crop space requirements, projecting temperature and light availability, calculating profit margins, etc.
6. Analyze and evaluate the procedures and methods used by other growers and marketers, as observed on field trips and presented by guest speakers.

OH 104. Principles of Landscaping

The course objectives shall include the students' ability to:

1. Be able to use the basic drafting tools with skill and proficiency.
2. Be able to intelligently present, and justify his/her designs to their fellow students and instructor. In presenting their design, they shall use correctly such vocabulary terms as:
   a. Light and shade
   b. Space
   c. Color and tone
   d. Texture
   e. Styles
3. Be able to answer questions related to the basic history of landscape design.
   a. List the major historical divisions of landscape design, (beginning with the Egyptian gardens and ending with the gardens of Italy)
   b. Describe those characteristics that make each historical style unique.
4. Be able to construct a small model of a proposed residential garden landscape.
5. Become conscious of the various materials (both natural and man made) used in landscape design.
6. Be able to use the media of colored pencils to render a print. The colors and methods of application shall reflect the feeling presented in the landscape design layout.

OH 111. Selected Topics in Ornamental Horticulture

OH 111A. Year-Round Garden Color

1. Demonstrate the ability to draw a plan of a year-round colorful garden.
2. Identify commonly used colorful plants used in landscaping and their growth patterns.
3. Explain the steps and materials needed to properly prepare the soil for a color garden.
4. Describe the common methods of planting procedures used with colorful plants.
5. Explain the types of fertilizers, pesticides and weed controls and how to apply these materials.
6. Explain the watering methods and needs of plants in this category.
7. Demonstrate the proper pruning procedures of flowers and several of their uses after being cut.
8. Create a planted container, using the color principles presented in class.

**OH 111B. Orchids**

Upon completion of the course, students will be able to:
1. Demonstrate the proper culture techniques through light, water, and temperature, for example needed to grow the following orchids:
   a. Cymbidium
   b. Cattleya
   c. Vanda and Phalaenopsis
   d. Odontoglossum and Oncidium
   e. Phalaenopilus
   f. Dendrobium
2. Demonstrate the proper potting, dividing, and materials for 1-6.
3. Identify and propose possible solutions for the most common pests and diseases of orchids.

**OH 111C. Container Gardening**

Upon completion of the course, students will be able to:
1. Discuss appropriate uses of container plantings, their advantages and disadvantages.
2. Explain the requirements for soils used in containers, and demonstrate their preparation.
3. Choose appropriate containers for various landscape situations, based on container size, material, design, construction, and style.
4. Identify commonly used varieties of plant material used for container gardening, and discuss factors which enable plants to perform well in container plantings.
5. Describe watering requirements and techniques for containerized plants, and choose appropriate watering methods for a variety of container plantings.
6. Demonstrate planting, transplanting, and removal techniques used for container plantings.
7. Demonstrate maintenance procedures for container plantings including fertilizing, deadheading, pruning, and pest control.
8. Design and install a container garden, specifying how plantings will change during the course of a year.

**OH 111D. Introduction to Xeriscaping**

Upon successful completion of this course, the student will be able to:
1. List and explain six essential factors for a successful xeriscape in the context of Northern California climate and soils.
2. Identify a broad selection of plant materials (50 minimum) appropriate to xeriscape.
3. Design and install a basic drip irrigation system.
4. Develop an appropriate planting plan through accurate site analysis.
5. Explain the "oasis" theory of landscape design.
6. Explain plant grouping theory according to their water requirements.

**OH 111E. Vegetables & Herbs: Fall**

The student will:
1. Be able to plan a fall/winter garden for a Bay Area garden location and will be able to adapt the timing and crops to other locations.
2. Be able to contrast garden/farming styles and identify the style into which specific practices fit (e.g. organic, biodynamic).
3. Be able to describe composting methods, explain why they work, set up small compost systems, meet health requirements, and correct problems that develop in the processes.
4. Be able to assess soil physical qualities and fertility for vegetable gardening, using soil tests and/or direct observation, and be able to improve soil to grow better crops. Be aware of possible soil contaminants and the importance of having soil tested for them.
5. Be able to apply knowledge of the similarities and differences among crops in the cabbage and onion plant families to enhance the productivity of these plants. Be able to grow artichokes.

**OH 111F. Vegetables & Herbs: Spring**

The student will:
1. Be able to plan a late winter/early spring garden for a Bay Area garden location, and will be able to adapt the timing and crops to other locations.
2. Be able to use references to choose the correct dates for planting crops indoors, decide how long to grow them indoors, whether to shift them to a larger pot, and how to prepare them for planting outside. Be able to grow crops successfully from seed sown indoors or in place.
3. Be able to make informed choices of vegetable and herb seed and plant material; understand the use of scientific names, the difference between hybrid and non-hybrid seed, how seed trials are performed, how to choose among varieties, etc.
4. Be able to explain how to save pure seed of the common vegetable crops and how to store seed for maximum longevity.
5. Be able to identify 10 local cool season weeds and understand how to control and use the weeds of the cool season.
6. Be able to apply knowledge of the similarities and differences among crops in the lettuce, carrot, and beet families to enhance the productivity of these plants. Be able to grow peas, fava beans, and potatoes.

**OH 111G. Vegetables & Herbs: Summer**

The student will:
1. Be able to plan a late spring/early summer garden for a Bay Area garden location, and will be able to adapt the timing and crops to other locations.
2. Be able to explain the principles of Integrated Pest Management, and how to go about planning an IPM program for a specific pest.
3. Be able to explain the basic characteristics and life cycles of insects, plant diseases, and other common plant pests, and how to use knowledge of their life cycles to manage them.
4. Be able to list and identify common local beneficial creatures and explain how to preserve and attract them. Additionally, be able to list the purchased beneficial creatures that may be of use in a local vegetable garden.
5. Be able to identify 10 local warm season weeds and understand how to control and use the weeds of the warm season.
6. Be able to apply knowledge of the similarities and differences among crops in the bean, squash, tomato, and corn families to enhance the productivity of these plants, with special attention to growing warm season crops the best chance in our cool summers.