Utah State University

Department of Plants, Soils, and Climate
College of Agriculture

Horticulture Major

Ornamental Horticulture Emphasis
Turfgrass Management Emphasis
Business Emphasis
Science Emphasis

Ornamental Horticulture

AAS and One-year Certificate

Published September 2009 **Effective for students beginning degree Summer Sem. 2009 thru Spring Sem. 2010**

Admission Requirements for This Major

1. New freshmen admitted to USU in good standing qualify for admission to this major.

2. Transfer students from other institutions need a 2.2 transfer GPA and students transferring from other USU majors need a 2.0 total GPA in courses required for this major to be accepted in good standing in Horticulture.

The Program

The demand for high-quality food, the use of ornamental plants to bring aesthetic qualitites to urban living, the increasing importance of land-use planning and zoning laws, the efforts to control air, soil, and water pollution, and the rehabilitation of land make this an exciting time to begin a career in Plants, Soils, and Climate.

In addition to learning about soil preparation, planting, growing, and harvesting crops, students learn how to identify and control insects, diseases, and weeds. They study the use of growth regulators, proper fertilization, water application, crop rotation, and other management practices to improve the production and quality of crops and to preserve our environment. Many interested students have the opportunity to receive hands-on experience working side-by-side with research scientists in the laboratory, greenhouse, and field.

The **Horticulture Major** prepares students for production of fruits, vegetables, turf, or ornamentals. Course topics include biology, chemistry, and control of insects, diseases, and weeds. The **Ornamental Horticulture Emphasis** adds courses in production management techniques, such as pruning, spraying, and landscaping (materials, design, and maintenance); and greenhouse management. In the **Turfgrass Management Emphasis**, students complete courses in turfgrass management to prepare them for careers in golf course, park, athletic field, and landscaping management. The **Business Emphasis** joins courses necessary for a minor in Business with those necessary for obtaining expertise in horticulture. The **Science Emphasis** prepares students for graduate study and for employment in technical occupations.

Students entering the department are assigned an advisor who assists them in developing their course schedule, suggests opportunities for summer employment, and maintains an awareness of job opportunities after graduation. Faculty members in the department enjoy working with students and make themselves available for student consultation.

Career Opportunities

Horticulture graduates obtain employment in many fields, but the most common include: (1) orchard, greenhouse, or nursery management; (2) golf course or parks superintendent; (3) laboratory technician; (4) supervisor or demonstrator of chemical or technical products; (5) inspector of agricultural products; (6) private businesses such as irrigation equipment sales, or consulting; (7) work abroad through government or philanthropic foundations to help solve world food, soil, and environmental problems; and (8) garden center, seed, and chemical sales.

Many graduates go on to graduate schools to prepare themselves for research and teaching. The department offers MS and PhD degrees.

Degrees and Certificates Offered Through This Department

Bachelor of Science (BS):
- Crop Science
- Horticulture
- Environmental Soil/Water Science
- Residential Landscape Design and Construction

Master of Science (MS) and Doctor of Philosophy (PhD):
- Plant Science
- Soil Science
- Biometeorology
- Ecology

Master of Professional Studies in Horticulture (MPSH)

Associate of Applied Science (AAS) and One-year Certificate:
- Ornamental Horticulture

Graduation Requirements: BS Degree in Horticulture

Minimum University Requirements*

Total credits	120
Grade point average (most majors require higher GPA)	2.00 GPA
Credits of *C-* or better	100
Credits of upper-division courses (#3000 or above)	40
USU credits	30
(20 of which must be upper division, including 10 required by major)	
Completion of approved major program of study	See department
Credits in minor (if required by department)	12
Credits in American Institutions (ECN 1500; HIST 1700, 2700, or 2710; POLS 1100; or USU 1300)	3
University Studies requirements	See next page

*Colleges and departments may require more credits or a higher GPA. See requirements on this sheet.

University Studies Requirements for Horticulture Major

Note: Approved University Studies courses and requirements are listed in the *General Catalog*. The most current listings are shown online at: **http://www.usu.edu/generalcatalog/**

General Education Requirements (30-34 credits)

Competency Requirements (9-10 credits)

Communications Literacy (CL1 and CL2) (6 credits)

ENGL 1010 (CL1) (3 credits) or satisfactory AP, CLEP, IBO, ACT, or SAT score

AND

ENGL 2010 (CL2) (3 credits) or satisfactory IBO score

Quantitative Literacy (QL) (3-4 credits)

MATH 1030 or 1050 or STAT 1040 (3-4 credits)

OR

One MATH or STAT course requiring MATH 1050 as a prerequisite

OR

Satisfactory AP, CLEP, IBO, ACT, or SAT score

Computer and Information Literacy (0 credits)

Passing grade on six computer and information literacy related examinations. (Effective Spring Semester 2010, students must fulfill this requirement prior to enrolling in ENGL 2010.)

Breadth Requirements (18-20 credits)

Select at least one approved course from each of the following six categories: **American Institutions (BAI), Creative Arts (BCA), Humanities (BHU), Life Sciences (BLS), Physical Sciences (BPS),** and **Social Sciences (BSS)**. At least two of the six breadth courses must be University Studies courses with a **USU prefix** (excluding USU 1000, 1010, 1100, 3330, 4900, and 6900). (CLEP or AP credit may be used.) WILD 2200 will fulfill the Life Sciences requirement, and CHEM 1110 will fulfill the Physical Sciences requirement for students in the Horticulture major.

Exploration Requirement (3-4 credits)

Choose an additional class from one of the following General Education categories: QL, BAI, BCA, BHU, BLS, BPS, or BSS. Another BLS or BPS course, such as BIOL 1620 (BLS), PSC 1800 (BLS), CHEM 1120 (BPS), CHEM 1220 (BPS), or PHYS 1200 (BPS) will meet this requirement.

Depth Education Requirements

Communications Intensive (CI) (2 courses)

PSC 3890 and 4890 will meet this requirement.

Quantitative Intensive (QI) (1 course)

One course having QI designation (such as BIOL 3060, 4400, PSC 5530, and STAT 3000) will meet this requirement.

Depth Course Requirements (4 credits minimum, including 2 credits minimum completed in *each* of two courses)

Complete at least 2 credits in ***approved*** 3000-level or above courses from each of the following two categories: **Humanities and Creative Arts (DHA)** and **Social Sciences (DSS)**.

Department Requirements

All courses used to fulfill major requirements must be taken for a grade of *A-B-C-D-F* and not *Pass/Fail*. A 2.5 GPA is required for all courses used to fulfill major requirements (Core and Emphasis courses). At least 20 credits of the major must be taken from the Plants, Soils, and Climate Department.

ARCPACS Certification

For general information, students should refer to the American Society for Horticultural Science website at: **http://www.ashs.org/** and the ARCPACS website at: **https://www.agronomy.org/certifications/**.

For specific course requirements, students should contact their advisor in the Plants, Soils, and Climate Department.

Horticulture Major

Students must complete the core courses and courses for one of the four emphases to fulfill the requirements for a Horticulture Degree.

Core Courses (22-25 credits)

Credits

- ☐ **CHEM 1110 (BPS)** General Chemistry I (F,Sp) (4 cr) **or**
- ☐ **CHEM 1210** Principles of Chemistry I (F,Sp) (4 cr) 4
- ☐ **MATH 1050 (QL)** College Algebra (F,Sp,Su) 4
- ☐ **OSS 1400** Microcomputer Applications 3
- ☐ **PSC 1050** Plants, Soils, and Climate Orientation (F) 1
- ☐ **PSC 2250** Occupational Experience in Agronomy and Horticulture (F,Sp,Su) (1-4 cr) **or**
- ☐ **PSC 4250** Internship in Plants, Soils, and/or Climate (F,Sp,Su) (1-4 cr) 1-4
- ☐ **PSC 3000** Fundamentals of Soil Science (F,Sp) 4
- ☐ **PSC 3890 (CI)** Preparation for Careers in Plants, Soils, and/or Climate (F) 1
- ☐ **PSC 4890 (CI)** Senior Seminar (Sp) 1
- ☐ **WILD 2200 (BLS)** Ecology of Our Changing World (F,Sp) 3

A. Ornamental Horticulture Emphasis (49 credits minimum)

In addition to the Core Courses, select 40 credits from the following courses. Those marked with an asterisk (*) are required.

Credits

- ☐ **ASTE 3080** Compact Power Units for Agricultural and Turfgrass Applications (Sp) 3
- ☐ **BIOL 1610*** Biology I (F) 4
- ☐ **BIOL 1620 (BLS)*** Biology II (Sp) 4
- ☐ **BIOL 3060 (QI)*** Principles of Genetics (F,Sp,Su) 4
- ☐ **PSC 1800 (BLS)** Introduction to Horticulture (F) 3
- ☐ **PSC 2600*** Annual and Perennial Plant Materials (F) 3
- ☐ **PSC 2620*** Woody Plant Materials: Trees and Shrubs for the Landscape (F) 3
- ☐ **PSC 2800** Fundamentals of Organic Agriculture (Sp) 3
- ☐ **PSC 3300** Residential Landscapes (Sp) 3
- ☐ **PSC 3400** Landscape Management Principles and Practices (Sp) 3
- ☐ **PSC 3700** Plant Propagation (F) 4
- ☐ **PSC 3810** Turfgrass Management (F) 3
- ☐ **PSC 4050** Greenhouse Management and Crop Production (Sp) 4
- ☐ **PSC 4200*** Temperate Zone Fruit Production (Sp) 3
- ☐ **PSC 4400*** Modern Vegetable Production (F) 3
- ☐ **PSC 4500** Soil Reclamation (Sp) 3
- ☐ **PSC 4810** Professional Turfgrass Management (Sp) 2
- ☐ **PSC 5530 (QI)*** Soils and Plant Nutrient Bioavailability (Sp) 3

Select two of the following courses:

- ☐ **BIOL 4430** Introduction to Plant Pathology (Sp) 4
- ☐ **BIOL 4500** Applied Entomology (Sp) 3
- ☐ **PSC 5550** Weed Biology and Control (F) 4

Select two of the following courses:

- ☐ **BIOL 4400 (QI)** Plant Physiology (F) 4
- ☐ **BIOL 4410** Plant Structure (Sp) 3
- ☐ **CHEM 1120 (BPS)** General Chemistry II (Sp) 4
- ☐ **PSC 3500** The Structure and Function of Economic Crop Plants (Sp) . . 3
- ☐ **PSC 5270** Environmental Plant Physiology (Sp) 2

B. Turfgrass Management Emphasis (48-52 credits)

In addition to the Core Courses, students must complete the following courses for the Turfgrass Management Emphasis.

Credits

- ☐ **BIOL 1610** Biology I (F) 4
- ☐ **BIOL 1620 (BLS)** Biology II (Sp) 4
- ☐ **BIOL 3060 (QI)** Principles of Genetics (F,Sp,Su) 4
- ☐ **PSC 2620** Woody Plant Materials: Trees and Shrubs for the Landscape (F) 3
- ☐ **PSC 3400** Landscape Management Principles and Practices (Sp) 3
- ☐ **PSC 3810** Turfgrass Management (F) 3
- ☐ **PSC 4200** Temperate Zone Fruit Production (Sp) (3 cr) **or**
- ☐ **PSC 4400** Modern Vegetable Production (F) (3 cr) 3
- ☐ **PSC 4810** Professional Turfgrass Management (Sp) 2

The following courses are suggested as electives. Select a minimum of two courses from each category:

Horticulture **Credits**

- ☐ **ASTE 3080** Compact Power Units for Agricultural and Turfgrass Applications (Sp) . . . 3
- ☐ **ASTE 3200** Irrigation Principles and Practices (Sp) . . . 3
- ☐ **PSC 2200** Pest Management Principles and Practices (Sp) . . . 3
- ☐ **PSC 3300** Residential Landscapes (Sp) . . . 3
- ☐ **PSC 3700** Plant Propagation (F) . . . 4
- ☐ **PSC 4700** Irrigated Soils (Sp, half semester) . . . 3
- ☐ **PSC 5100** Landscape Irrigation Management (Sp) . . . 3
- ☐ **PSC 5550** Weed Biology and Control (F) . . . 4
- ☐ **WILD 5300** Wildlife Damage Management Principles (Sp) . . . 3

Science

- ☐ **BIOL 2220** General Ecology (F,Sp) . . . 3
- ☐ **BIOL 3040** Plants and Civilization (F) . . . 3
- ☐ **BIOL 4400 (QI)** Plant Physiology (F) . . . 4
- ☐ **BIOL 4410** Plant Structure (Sp) . . . 3
- ☐ **BIOL 4420** Plant Taxonomy (Sp) . . . 3
- ☐ **BIOL 4430** Introduction to Plant Pathology (Sp) . . . 4
- ☐ **BIOL 4500** Applied Entomology (Sp) . . . 3
- ☐ **CHEM 1120 (BPS)** General Chemistry II (Sp) . . . 4
- ☐ **CHEM 1215** General Chemistry Laboratory I (F,Sp) . . . 1
- ☐ **PSC 3500** The Structure and Function of Economic Crop Plants (Sp) . . . 3
- ☐ **PSC 4000** Soil and Water Conservation (F) . . . 4
- ☐ **PSC 4500** Soil Reclamation (Sp) . . . 3
- ☐ **PSC 5270** Environmental Plant Physiology (Sp) . . . 2
- ☐ **PSC 5430** Plant Nutrition (F even) . . . 2
- ☐ **PSC 5530 (QI)** Soils and Plant Nutrient Bioavailability (Sp) . . . 3
- ☐ **STAT 2000 (QI)** Statistical Methods (F,Sp) . . . 3

Business

- ☐ **ACCT 2010** Survey of Accounting I (F,Sp,Su) . . . 3
- ☐ **ASTE 3050 (CI)** Technical and Professional Communication Principles in Agriculture (F,Sp) . . . 3
- ☐ **ECN 1500 (BAI)** Introduction to Economic Institutions, History, and Principles (F,Sp,Su) . . . 3
- ☐ **MGT 2050** Legal and Ethical Environment of Business (F,Sp,Su) . . . 3
- ☐ **MGT 3110 (DSS)** Managing Organizations and People (F,Sp,Su) . . . 3
- ☐ **MGT 3500** Fundamentals of Marketing (F,Sp,Su) . . . 3
- ☐ **MGT 3710** Developing Team and Interpersonal Skills (F,Sp) . . . 3

C. Business Emphasis (48 credits)

In addition to the Core Courses, select 30 credits from the following courses. Those marked with an asterisk (*) are required.

Credits

- ☐ **BIOL 1610*** Biology I (F) . . . 4
- ☐ **PSC 1800 (BLS)** Introduction to Horticulture (F) . . . 3
- ☐ **PSC 2200*** Pest Management Principles and Practices (Sp) . . . 3
- ☐ **PSC 2600** Annual and Perennial Plant Materials (F) . . . 3
- ☐ **PSC 2620** Woody Plant Materials: Trees and Shrubs for the Landscape (F) . . . 3
- ☐ **PSC 2800** Fundamentals of Organic Agriculture (Sp) . . . 3
- ☐ **PSC 3300** Residential Landscapes (Sp) . . . 3
- ☐ **PSC 3400*** Landscape Management Principles and Practices (Sp) . . . 3
- ☐ **PSC 3500*** The Structure and Function of Economic Crop Plants (Sp) . . . 3
- ☐ **PSC 3700** Plant Propagation (F) . . . 4
- ☐ **PSC 3810** Turfgrass Management (F) . . . 3
- ☐ **PSC 4050** Greenhouse Management and Crop Production (Sp) . . . 4
- ☐ **PSC 4200*** Temperate Zone Fruit Production (Sp) . . . 3
- ☐ **PSC 4400*** Modern Vegetable Production (F) . . . 3
- ☐ **PSC 4500** Soil Reclamation (Sp) . . . 3
- ☐ **PSC 4700** Irrigated Soils (Sp, half semester) . . . 3
- ☐ **PSC 5270** Environmental Plant Physiology (Sp) . . . 2
- ☐ **PSC 5530 (QI)*** Soils and Plant Nutrient Bioavailability (Sp) . . . 3
- ☐ **PSC 5550*** Weed Biology and Control (F) . . . 4

The following courses are required for a Business Minor and the Business Emphasis:

Credits

- ☐ **ACCT 2010** Survey of Accounting I (F,Sp,Su) . . . 3
- ☐ **MGT 2050** Legal and Ethical Environment of Business (F,Sp,Su) . . . 3
- ☐ **MGT 3110 (DSS)** Managing Organizations and People (F,Sp,Su) . . . 3
- ☐ **MGT 3500** Fundamentals of Marketing (F,Sp,Su) . . . 3
- ☐ **PFP 3460** Fundamentals of Personal Investing . . . 3

Complete one of the following courses:

- ☐ **ACCT 2020** Survey of Accounging II (F,Sp,Su) . . . 3
- ☐ **ECN 3400 (DSS)** International Economics for Business (F,Sp,Su) . . . 3
- ☐ **MGT 3700** Operations Management (F,Sp,Su) . . . 3
- ☐ **MIS 2100** Principles of Management Information Systems (F,Sp,Su) . . . 3

D. Science Emphasis (48 credits minimum)

In addition to the Core Courses, students must select 44 credits from the following courses for the Science Emphasis. Those marked with an asterisk (*) are required.

Credits

- ☐ **BIOL 1610*** Biology I (F) . . . 4
- ☐ **BIOL 1620 (BLS)*** Biology II (Sp) . . . 4
- ☐ **BIOL 3060 (QI)*** Principles of Genetics (F,Sp,Su) . . . 4
- ☐ **BIOL 4400 (QI)*** Plant Physiology (F) . . . 4
- ☐ **BIOL 4410** Plant Structure (Sp) . . . 3
- ☐ **CHEM 1120 (BPS)** General Chemistry II (Sp) . . . 4
- ☐ **CHEM 1215** Chemical Principles Laboratory I (F,Sp) . . . 1
- ☐ **CHEM 1220 (BPS)** Principles of Chemistry II (F,Sp,Su) . . . 4
- ☐ **CHEM 1225** Chemical Principles Laboratory II (F,Sp) . . . 1
- ☐ **CHEM 2310** Organic Chemistry I (F) . . . 4
- ☐ **CHEM 2320** Organic Chemistry II (Sp) . . . 4
- ☐ **CHEM 3700** Introductory Biochemistry (Sp) . . . 3
- ☐ **CHEM 3710** Introductory Biochemistry Laboratory (Sp) . . . 1
- ☐ **MATH 1060** Trigonometry (F,Sp,Su) . . . 2
- ☐ **MATH 1100 (QL)*** Calculus Techniques (F,Sp,Su) . . . 3
- ☐ **PHYS 1200 (BPS)** Introduction to Physics by Hands-on Exploration . . . 4
- ☐ **PSC 2800** Fundamentals of Organic Agriculture (Sp) . . . 3
- ☐ **PSC 3200 (DSC)** Microbes in Environmental Action (Sp) . . . 3
- ☐ **PSC 3700** Plant Propagation (F) . . . 4
- ☐ **PSC 4200*** Temperate Zone Fruit Production (Sp) . . . 3
- ☐ **PSC 4400*** Modern Vegetable Production (F) . . . 3
- ☐ **PSC 4500** Soil Reclamation (Sp) . . . 3
- ☐ **PSC 5270*** Environmental Plant Physiology (Sp) . . . 2
- ☐ **PSC 5430** Plant Nutrition (F even) . . . 2
- ☐ **PSC 5440** Plant Molecular, Cellular, and Developmental Biology I (Sp even) . . . 3
- ☐ **PSC 5450** Plant Molecular, Cellular, and Developmental Biology II (Sp odd) . . . 3
- ☐ **PSC 5530 (QI)*** Soils and Plant Nutrient Bioavailability (Sp) . . . 3
- ☐ **PSC 5610** Plant Water Relations (F) . . . 2
- ☐ **PSC 5760** Crop Ecology (Sp) . . . 2
- ☐ **STAT 3000 (QI)** Statistics for Scientists (F,Sp,Su) . . . 3
- ☐ Select any Ornamental Horticulture class* . . . 3

Select one of the following:

- ☐ **BIOL 4430** Introduction to Plant Pathology (Sp) . . . 4
- ☐ **BIOL 4500** Applied Entomology (Sp) . . . 3
- ☐ **PSC 5550** Weed Biology and Control (F) . . . 4

Ornamental Horticulture Program One-year Certificate (27 credits)

The 27 credits are distributed as follows: **Credits**

- ☐ **PSC 2600** Annual and Perennial Plant Materials (F) . . . 3
- ☐ **PSC 2620** Woody Plant Materials: Trees and Shrubs for the Landscape (F) . . . 3
- ☐ Additional PSC courses selected from Associate of Applied Science Core Classes** . . . 18
- ☐ Courses selected from Approved Electives . . . 3

**Students should choose courses that emphasize either Floriculture or Landscape Horticulture.

Ornamental Horticulture Program
Associate of Applied Science Degree (60 credits)

The 60 credits are distributed as follows. Some courses require biology prerequisite courses.

University Studies Requirements (15 credits) **Credits**

☐ **ENGL 1010 (CL1)** Introduction to Writing: Academic Prose (F,Sp,Su) . . . 3
☐ **ENGL 2010 (CL2)** Intermediate Writing: Research Writing in a Persuasive Mode (F,Sp,Su) . . . 3
☐ Social Sciences/Humanities Breadth Courses . . . 6
☐ Life Sciences/Physical Sciences Breadth Course . . . 3

Professional Requirement

☐ All of the Core Courses . . . 34-37
☐ Courses selected from Approved Electives . . . 7-10

Core Courses (34-37 credits)

☐ **OSS 1400** Microcomputer Applications . . . 3
☐ **PSC 1050** Plants, Soils, and Climate Orientation (F) . . . 1
☐ **PSC 1800 (BLS)** Introduction to Horticulture (F) . . . 3
☐ **PSC 2200** Pest Management Principles and Practices (Sp) . . . 3
☐ **PSC 2250** Occupational Experience in Agronomy and Horticulture (F,Sp,Su) . . . 1-4
☐ **PSC 2600** Annual and Perennial Plant Materials (F) . . . 3
☐ **PSC 2620** Woody Plant Materials: Trees and Shrubs for the Landscape (F) . . . 3
☐ **PSC 3300** Residential Landscapes (Sp) . . . 3
☐ **PSC 3400** Landscape Management Principles and Practices (Sp) . . . 3
☐ **PSC 3700** Plant Propagation (F) . . . 4
☐ **PSC 3810** Turfgrass Management (F) . . . 3
☐ **PSC 4050** Greenhouse Management and Crop Production (Sp) . . . 4

Approved Electives (11-15 credits)

Choose electives from the following courses **or** choose from any courses that are part of a BS Degree in Horticulture.

Credits

☐ **BIOL 1610** Biology I (F) . . . 4
☐ **CHEM 1110 (BPS)** General Chemistry I (F,Sp) . . . 4
☐ **PSC 2900** Special Problems in Plant Science (F,Sp,Su) . . . 1-4
☐ **PSC 3000** Fundamentals of Soil Science (F,Sp) . . . 4
☐ **PSC 3500** The Structure and Function of Economic Crop Plants (Sp) . . . 3
☐ **PSC 4200** Temperate Zone Fruit Production (Sp) . . . 3
☐ **PSC 4400** Modern Vegetable Production (F) . . . 3

Requirement Changes

Graduation requirements shown on this sheet are subject to change. Students should check with their departments concerning possible changes.

Materials for Persons with Disabilities

This requirement sheet is available in digital format, recordings, or large print upon request to the USU Disability Resource Center.

For information contact

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