

# HORT-HORTICULTURE

## HORT 1115G. Introductory Plant Science

### 4 Credits (3+2P)

Introduction to the physical, biological, and chemical principles underlying plant growth and development in managed ecosystems. In the laboratory portion of the class, students perform experiments demonstrating the principles covered in lecture. The course uses economic plants and agriculturally relevant ecosystems to demonstrate basic principles. Appropriate for nonscience majors. Same as AGRO 1110G.

#### Learning Outcomes

1. Describe the role plants play in everyday lives
2. Introduce career opportunities in plant and soil sciences, and related fields
3. Define plants through the concepts of plant structure and anatomy
4. Introduce the wide variety of plants cultivated throughout the world
5. Describe how plants work (growth, reproduction, physiology, and soil)
6. Describe how plants are manipulated to feed, clothe and entertain the world

## HORT 2110. Ornamental Plants I

### 4 Credits (2+3P)

Covers identification, botanical characteristics, culture, and landscape uses of woody plants. Emphasis on deciduous trees, native shrubs, and evergreens.

#### Learning Outcomes

1. Given 35 ornamental plants selected from the course's plant list, 100% of students will be expected to correctly identify the genus, species, and common names of the plants with 70% accuracy.
2. Given plants selected from the course's plant list, 100% students will be expected to identify to landscape use of those plants with 85% accuracy.

## HORT 2120. Ornamental Plants II

### 4 Credits (2+3P)

Identification, botanical characteristics, culture, and landscape uses of woody plants. Emphasis on flowering trees, cacti, and members of the pea and rose families.

#### Learning Outcomes

1. Given 35 ornamental plants selected from the course's plant list, 100% of students will be expected to correctly identify the genus, species, and common names of the plants with 70% accuracy.
2. Given plants selected from the course's plant list, 100% students will be expected to identify to landscape use of those plants with 85% accuracy.

## HORT 2130. Floral Quality Evaluation and Design

### 2 Credits (1+2P)

Critical hands-on evaluation of the quality of cut and potted floral and tropical foliage crops, their specific merits and faults, and fundamentals of floral design.

#### Learning Outcomes

1. Identify common floriculture crops, or know resourcing to help identify the crop.
2. Evaluate quality (merit and fault) of common floriculture crops, based on industry standards and merit. Pi Alpha Xi and American Floral Endowment standards will be used for the purpose of this class.
3. Have a basic understanding of the floriculture industry, and identify career pathways within the industry.

4. Know, understand, creatively interpret, and execute basic principles of design in regards to floral design.
5. Use interpersonal communication, problem solving, basic math, and marketing during cash and carry "lab" time (flower sales) in developing job ready skills in floristry.
6. Layer principles of design, marketing, sales, and time management to create floral art in real-world scenarios.

## HORT 2160. Plant Propagation

### 3 Credits (2+2P)

Practical methods of propagating horticultural plants by seed, cuttings, layering, grafting, division and tissue culture. Examination of relevant physiological processes involved with successful plant propagation techniques. Same as AGRO 2160.

#### Learning Outcomes

1. Practical methods of propagating plants by seed, cuttings, layering, grafting, division, and tissue culture through experiential, "hands-on" laboratories.
2. Relevant physiological principles involved in propagating horticultural plants through lecture discussions and readings.

## HORT 2990. Floriculture Field Practicum

### 1 Credit (1)

Participation as team member in the National Intercollegiate Floral Quality Evaluation and Design Competition. Intensive week-long travel for competition, networking with industry, academia, and floriculture tours. May be repeated for a maximum of 3 credits.

**Prerequisite(s):** HORT 2130 or consent of instructor.

#### Learning Outcomes

1. Varies

## HORT 2996. Special Topics

### 1-4 Credits

Specific subjects and credits as announced. Maximum of 4 credits per semester and a grand total of 9 credits. May be repeated up to 9 credits. Consent of Instructor required.

#### Learning Outcomes

1. Varies

## HORT 300. Special Topics

### 1-4 Credits

Specific subjects as announced in the Schedule of Classes. Maximum of 4 credits per semester and a grand total of 9 credits. May be repeated up to 9 credits. Consent of Instructor required. Restricted to Las Cruces campus only.

## HORT 302V. Forestry and Society

### 3 Credits (3)

Global study of the development and use of forest resources for production of wood, fuel, fiber, and food products. Climatic, edaphic, cultural, and economic influences on forests of the world evaluated. Same as RGSC 302V.

## HORT 304. Hydroponics

### 4 Credits (4)

This course will introduce students to the basics of the different soil-less growing systems: hydroponics, aeroponics and aquaponics. Topics will include growing systems and environments, crop management, business aspects of hydroponic growing, integrated pest management, commercial and restaurant systems, and plant nutrition. Labs will reinforce lecture topics and give students practical experience growing different types of crops in different types of systems.

**Prerequisite:** AGRO 1110G or HORT 1115G.

**Learning Outcomes**

1. Discuss the benefits and constraints of different hydroponic systems.
2. Evaluate different crops for each type of system.
3. Identify the components and calculate costs of different systems.
4. Demonstrate how to build and maintain each type of system.
5. Discuss how soilless growing relates to sustainability and local food production.

**HORT 305. Principles of Genetics****3 Credits (3)**

Covers fundamental principles of reproduction, variation, and heredity in plants and animals. May be repeated up to 3 credits.

**Prerequisite:** (BIOL 2610G and BIOL 2110G, or BIOL 2110G and BCHE 140, and either CHEM 1215G or CHEM 1216).

**Learning Outcomes**

1. To provide an introduction to the basic concepts, methods, and terminology of genetics. Introduction to genomics and bioinformatics.
2. To develop a working understanding of genetics and heredity
3. To understand in some depth, the mechanism of DNA replication, transcription and protein synthesis. To understand the regulation of gene expression.
4. To examine the impact of genetics on both basic and applied aspects of the biological sciences, as well as its effects on our everyday lives.

**HORT 307. Landscape Design****4 Credits (3+3P)**

Design elements, the design process, and contemporary planting design used in the design of residential and small commercial landscapes. Basic drafting, drawing, and landscape plan presentation techniques.

**Prerequisite:** HORT 2110 or HORT 2120 or consent of instructor.

**Learning Outcomes**

1. Access a residential site for landscape design.
2. Create a landscape plan that addresses and solves a client's needs and wishes.
3. Incorporate ideas into the landscape plan that reflects the region.
4. Incorporate sustainable ideas into a landscape plan.
5. Analyze a landscape plan for aesthetics and functionality.
6. Verbally and visually present a landscape plan in a professional manner.

**HORT 310. Medicinal Herbs****3 Credits (3)**

Introduction to ethnobotany, including plant cultivation, extraction methods, and analysis of active chemistries.

**HORT 318V. Urban Water Issues and Society****3 Credits (3)**

Global study of water science, development, law, and use for agriculture, manufacturing, landscaping, home use, and other urban uses. This course allows students to become familiar with important issues concerning the interaction between water use and humans. Topics include the water cycle, water chemistry, human-water relations, plant-water relations, water users, water-dependent population placement and growth, water regulation, and the future of water.

**Learning Outcomes**

1. Define and describe Earth's water sources and the water cycle.
2. Describe the chemical processes associated with water and analyze the composition of several water sources.
3. Summarize the interactions of water with the human body.

4. Explain the use of water in agricultural and other plants on both a regional scale and cellular level.
5. Identify, explain, and compare all water users and categorize their demand and availability for water.
6. Analyze the interconnection of the human societies and water while discussing locations of civilizations and communities.
7. Analyze, from a historical perspective, the interrelationships of all water users and all water decision makers. Describe the history of US and world water regulation and analyze its success rate.
8. Predict and recommend how water will be used and distributed in the future.

**HORT 365. Principles of Crop Production****4 Credits (3+3P)**

Basic principles of crop production including environmental and physiological factors limiting production, plant nutrition and soil science, soil-water management, cropping systems and management, pest management, and economic factors influencing crop production.

Crosslisted with: AGRO 365

**Prerequisite(s):** AGRO 1110G/HORT 1115G, CHEM 1215G or equivalent and MATH 1215 or equivalent.

**HORT 377. Introduction to Turfgrass Management****4 Credits (3+3P)**

Establishment and maintenance of turfgrass with emphasis on seeding methods, soil and water management, mowing, disease insects and turfgrass varieties. Crosslisted with: AGRO 377

**HORT 378. Turfgrass Science****4 Credits (3+3P)**

Introduction to the scientific fundamentals for turfgrass management cultural practices, pest management, rootzone construction and ecology.

**Prerequisite(s):** HORT 377 or consent of instructor.

**HORT 391. Internship****1-6 Credits**

Professional work experience under the joint supervision of the employer and a faculty member. A written report is required. No more than 6 credits toward a degree. Consent of instructor required. Graded: S/U. Crosslisted with: AGRO 391 and SOIL 391

**HORT 447. Seminar****1 Credit (1)**

Organization, preparation, and presentation of current topics in agronomy, environmental sciences, horticulture, and soil science. Crosslisted with: AGRO 447, ENVS 447 and SOIL 447.

**HORT 449. Special Problems****1-3 Credits**

Research problem, experience training, or other special study approved by a faculty adviser. Maximum of 3 credits per semester and a grand total of 6 credits. May be repeated up to 6 credits. Consent of Instructor required.

**HORT 450. Special Topics****1-4 Credits**

Specific subjects as announced in the Schedule of Classes. Maximum of 4 credits per semester and a grand total of 9 credits. May be repeated up to 9 credits. Consent of Instructor required.

**HORT 462. Plant Breeding****3 Credits (3)**

Principles and practices involved with the genetic improvement of plants. May be repeated up to 3 credits.

**Prerequisite(s):** ANSC/AGRO/BIOL/HORT/GENE 305 or GENE 315 and GENE 320.

**HORT 471. Plant Mineral Nutrition****3 Credits (3)**

Basic and applied aspects of plant requirements for soil-derived minerals and the processes whereby minerals are acquired, absorbed, translocated, and utilized throughout the plant. Same as AGRO/EPWS 471. May be repeated up to 3 credits.

**Prerequisite/Corequisite:** EPWS/BIOL 314, or concurrent enrollment, or consent of instructor.

**HORT 479. Advanced Turfgrass Science****3 Credits (3)**

Extensive reviews of turfgrass sciences including ecology, physiology, entomology, pathology, weed science, and soil science.

**Prerequisite:** HORT 378 or consent of instructor.

**HORT 483. Advanced Sustainable Crop Production****4 Credits (3+3P)**

Characteristics and objectives of sustainable agricultural systems with application to the production, utilization, and improvement of agronomic and vegetable crops.

**Prerequisite:** AGRO 365 or HORT 365.

**Learning Outcomes**

1. Identify and analyze issues in agriculture and their possible causes.
2. Identify principles of sustainable agriculture and contrast with conventional agriculture.
3. Evaluate application of principles of sustainable agriculture.
4. Define clearly what sustainable agriculture is and its importance for conserving natural resources.
5. Evaluate role of different crop management practices such as GMO's or organic agriculture and make unbiased inferences based on scientific evidence.
6. Gain experience in sustainable crop production through experiential learning.
7. Observe, analyze, and critique real-world examples of sustainable agriculture and conventional agriculture models.
8. Collaborate with peers and engage in team-based learning.
9. Present and write well on topics in sustainable crops.
10. Learn about advances in agricultural technology and its role in sustainable crop production.

**HORT 488. Greenhouse Management****4 Credits (3+3P)**

Principles and practices involved in greenhouse structures and construction, site considerations, heating and cooling systems, greenhouse crop production techniques, sustainability practices. May be repeated up to 4 credits.

**Prerequisite(s):** HORT/AGRO 365 or consent of instructor.

**HORT 492. Diagnosing Plant Disorders****3 Credits (2+3P)**

Systematic diagnosis of the physiological, pathological, and entomological causes of plant disorders. Same as EPWS 492 and AGRO 492.

**Prerequisites:** EPWS 303 and EPWS 310.

**HORT 500. Special Topics****1-4 Credits**

Specific subjects and credits to be announced in the Schedule of Classes. Maximum of 4 credits per semester. No more than 9 credits toward a degree.

**HORT 505. Research Orientation****4 Credits (3+2P)**

Training in writing research proposals, presentation of research results, and interpretation of research results. Crosslisted with: AGRO 505, SOIL 505 and ENVS 505.

**HORT 525. Scientific Writing How to be a Productive and Effective Writer**  
**1-3 Credits (1-3)**

Students will learn to improve their writing skills so that their manuscript preparation process is more efficient and productive. Students will also gain experience in peer-review. Crosslisted with: AGRO 525, AGRO 625, EPWS 525, SOIL 625 and SOIL 525.

**HORT 590. Graduate Seminar****1 Credit (1)**

Current research discussions presented by masters level graduate students. Not more than one credit toward the degree. Same as AGRO/SOIL 590. Crosslisted with: AGRO 590 and SOIL 590.

**HORT 595. Internship****1-6 Credits**

Supervised professional on-the-job learning experience. Limited to Master of Horticulture or Plant & Environmental Science candidates. Not more than 6 credits toward the degree.

**HORT 596. Masters Proposal****1 Credit (1)**

Current research proposal written by masters level graduate students. Consent of Instructor required. Crosslisted with: AGRO 596, ENVS 596, GENE 596 and SOIL 596. Restricted to: Masters HORT; Masters PLEN majors.

**Prerequisite(s):** Master level graduate students.

**HORT 598. Special Research Programs****1-6 Credits**

Individual investigations, either analytical or experimental. Maximum of 6 credits per semester. No more than 9 credits toward a degree.

**Prerequisite:** consent of instructor.

**HORT 599. Master's Thesis****15 Credits**

Thesis.