

# Agriculture (AG)

## Agriculture (AG) Classes

### AG 102 : Orientation to Hawai'i Agriculture Industry

**Credits:** 1

**Class Hours:** 1 lecture

**Description:** This course familiarizes students with different agricultural operations/systems in Hawai'i through lectures, research, student presentations, guest speakers and/or field trips.

**Semester Offered:** Fall, Spring

**Course Student Learning Outcomes (CSLOs):**

1. Explain different agricultural practices and enterprises included in diversified agriculture.
2. Describe various careers and potential employers as well as workplace situations in agricultural careers in Hawai'i.
3. Identify challenges and opportunities of agriculture enterprises in Hawai'i.

### AG 122 : Soil Technology

**Credits:** 3

**Class Hours:** 2 lecture and 3 lab

**Description:** This course (i) studies identification, preparation, and fertilization of soils, (ii) discusses soil formation, soil classification, soil reaction, soil and water relationships, soil protection and irrigation practices, and (iii) emphasizes sustainable management systems.

**Semester Offered:** Spring

**Course Student Learning Outcomes (CSLOs):**

1. Explain soil forming factors as they relate to soil chemical and physical properties.
2. Describe the role of organic matter, water, pH, plant nutrients, essential elements, composts, amendments, and fertilizers on soil fertility.
3. Outline the basic concepts to manage soil health and fertility.

### AG 141 : Integrated Pest Management

**Credits:** 3

**Class Hours:** 2 lecture and 2 lecture/lab

**Description:** This course includes an introduction to the principles involved in the control of plant pests including diseases, insects, mites, nematodes, and weeds. Various methods of controlling pests, including the correct method of selecting and applying pesticides will be covered. Integrated pest management will be incorporated into the course.

**Semester Offered:** Fall, Spring

**Course Student Learning Outcomes (CSLOs):**

1. Describe biological and ecological adaptations of weed species and the implications for control.
2. Identify common agricultural weed pests, and categorize weeds into monocots, dicots, and sedges.
3. Identify common agricultural insects and mites, including natural enemies and beneficials.
4. Identify common agricultural diseases, including bacterial, fungal, viral, and nematodes.
5. Discuss appropriate control measures for pest management.

### AG 200 : Principles of Horticulture

**Credits:** 3

**Class Hours:** 3 lecture

**Prerequisites:** "C" or higher or concurrent enrollment in AG 200L.

**Description:** This course introduces plant anatomy and physiology, as well as discusses plant nutrients, moisture, environmental requirements, and plant propagation. In addition, culture and production techniques for selected ornamental crops will be studied.

**Semester Offered:** Fall, Spring

**Designation:**

Diversification: Biological Sciences — DB

**Course Student Learning Outcomes (CSLOs):**

1. Describe and explain general plant structure and function in relation to plant growth and development.
2. Apply knowledge to produce a horticultural crop.
3. Demonstrate knowledge of horticultural principles in the cultivation of plants.

## AG 200L : Principles of Horticulture Lab

**Credits:** 1

**Class Hours:** 3 lab

**Prerequisites:** "C" or higher or concurrent enrollment in AG 200.

**Description:** This course (1) introduces plant anatomy and physiology, (2) discusses plant nutrients, moisture, environmental requirements and plant propagation, and (3) studies culture and production techniques for selected ornamental crops through laboratory exercises.

**Semester Offered:** Fall, Spring

**Designation:**

Diversification: Lab (Science) — DY

**Course Student Learning Outcomes (CSLOs):**

1. Categorize and identify the taxonomy of horticultural plants.
2. Describe and identify the function of plant cells, tissues, and organs.
3. Describe plant differentiation, vegetative and reproductive physiology, and life cycles.
4. Discuss the basics of soil-water management.
5. Identify climates and types of horticultural crops and growing systems adapted to these zones.
6. Explain basic plant processes including photosynthesis, respiration, nutrient absorption, translocation, and transpiration.
7. Discuss and identify soil, soil management, and mineral nutrition of plants and recognize symptoms of deficiencies.
8. Discuss the fundamentals of horticultural pests and their management.
9. Demonstrate and describe the methods of breeding plants for economic traits.

## AG 264 : Plant Propagation

**Credits:** 3

**Class Hours:** 2 lecture and 2 lecture/lab

**Description:** This is an introductory course in the principles and practices of plant propagation. This course will focus on: (i) theoretical and applied aspects of sexual and asexual reproduction of plants and (ii) propagation of selected plants by seed, cuttings, grafting, layering, and micropropagation/tissue culture.

**Semester Offered:** Fall, Spring

**Course Student Learning Outcomes (CSLOs):**

1. Identify equipment, tools, and supplies necessary to propagate plants.
2. Describe the practices involved in sexual and asexual plant propagation.
3. Recommend the best methods of propagation of selected plants such as root, stem, and leaf cutting; layerage; divisions; grafting; budding; and by seeds.

## AG 271 : Introduction to Crop Improvement

**Credits:** 3

**Class Hours:** 2 lecture and 3 lab

**Prerequisites:** "C" or higher in AG 200, BOT 101, or both SCI 121 and SCI 121L.

**Description:** This course includes fundamentals of genetic theory using biotechnological procedures in insect and plant pathogen control and plant and animal breeding as practical applications.

**Semester Offered:** Spring

**Designation:**

Diversification: Biological Sciences — DB

**Course Student Learning Outcomes (CSLOs):**

1. Describe the structure, function, and replication of DNA as the genetic material.
2. Describe basic concepts of genomics.
3. Describe genetic variation and its use in crop improvement.
4. Identify major methods used for crop improvement.

## AG 293V : Plant Biology and Tropical Agriculture Internship

**Credits:** 1-3

1 hour per week with coordinator and 75 hours work experience for each credit.

**Prerequisites:** Approval of instructor.

**Comments:** May be repeated for a maximum of 12 credits.

**Description:** The course provides credit for supervised experiential learning projects including independent research projects with an instructor and internships with an employer. The nature of the internship or research project is variable but will be designed to provide an opportunity for experiential learning. Students may enroll in 1-3 credits of AG 293V per semester, depending on project time commitment.

**Semester Offered:** Fall, Spring

**Course Student Learning Outcomes (CSLOs):**

1. Develop a written and/or oral professional presentation detailing internship project, results, and experiences.
2. Maintain a laboratory notebook and/or journal detailing internship project.
3. Demonstrate the ability to work in a professional setting through an experiential-learning environment.