

University of Hawai'i at Hilo
Syllabus: Spring 2020
Principles of Horticulture
Course: HORT 262 CRN 12692

(TR 11-11:50am in CAB #201 and Thursday 12:30-3:00 PM at FARM)

Instructor(s): Dr. Sharad P. Marahatta

Email: sharadch@hawaii.edu

Office: CAB, room #205

Office phone: 808-932-7973

Office hours: By appointment (Tuesday and Thursday at 8-11 AM).

Lecture location: CAB #201

Laboratory location: UHH Farm, Ikaika Rd., Hilo HI 96720

Textbook: none

Reference books:

Introductory Horticulture (9th ed.). 2017. Shry and Reiley. CENGAGE Learning.

Plant science, growth development and utilization of cultivated plants (5th ed.). 2011. McMahan, Kofranek, and Rubatzky. Pearson Book Company.

Plant science, 1987. Barden, Halfacre, Parrish. McGraw-Hill Book Company.

Stern's Introductory Plant Biology (14th ed.). 2018. Bidlack and Jansky. Mc Graw Hill.

Hawaiian breadfruit: ethnobotany, nutrition and human ecology. 2004. Meilleur, B. A., Jones, R. R., Titchenal, C. A., and Huang, A. S. College of Tropical Agriculture and Human Resources, University of Hawaii at Manoa.

Available at: <http://www.ctahr.hawaii.edu/oc/freepubs/pdf/breadfruit.pdf>

Other assigned reading websites will be provided before the class, or the required readings will be provided at laulima (<http://laulima.hawaii.edu>). Most of the materials presented in class are also available on laulima.

Course credit: 3 credits

Course hours: ~ lecture (2 credits ~ 2 hrs) + lecture-lab/field (1 credit ~ 2 hrs)

Classroom(s): CAB #201

Prerequisite(s): None

Course description:

HORT 262 Principles of Horticulture: Introduction to the various divisions of horticulture and the relationship of plants to environment; Plant structure and function with opportunities for observation and practice of various horticultural technologies. Students are required to participate in a garden project.

Introduction:

Introduction to the various divisions of horticulture and the relationship of plants to the environment. Students will learn the applied aspects of horticulture as well as the science background. Emphasis will be placed on: photosynthesis and mineral nutrition. A garden project is required. This is a Natural Science Elective course for Gen. Ed, but does not satisfy the Natural Science laboratory requirement. The course will be presented in Spring and Fall of each year and will involve two 50-minute lecture sessions and one 2.5- hour laboratory session weekly. Each of the laboratory sessions will involve projects, experiments and demonstrations that will apply theories discussed in lectures sessions or assigned readings.

Student requirements will include:

- Attending lectures and laboratory sessions
- Reading lecture notes from class supplemental handouts (most of the reading materials will be uploaded on laulima)
- Keep garden journal and photos for writing how to grow a garden report at end of the semester.
- Growing and maintaining a garden
- Learning skills: experiential procedure, plant propagation skills and garden / greenhouse management skills
- Taking information festival (test)s at the scheduled time and date.
- Adhering to the UH-Hilo student conduct code (https://hilo.hawaii.edu/studentaffairs/conduct/student_conduct.php).

Student learning outcomes

Upon completion of this course, students should be able to:

- demonstrate understanding of the science supporting the basic cultural principles of horticultural including light requirements, plant nutrition requirements, fertilization practices, effect of soil and climatic factors on cultural practices.
- demonstrate knowledge of horticultural principles and skills in the actual cultivation of selected crops through laboratory exercises; laboratory exercises will be performed weekly using a combination of greenhouse and field propagation and cultivation of selected crops.
- illustrate the commercial aspects of horticulture through individual cultivation and sale of a horticultural crop.

Summary calendar for Spring 2020

First day of instruction	- Monday, January 13th
First day of instruction (HORT 262)	- Tuesday, January 14th
Martin Luther King Jr. Day (HOLIDAY)	- Monday, January 20th
Presidents' Day (Holiday)	- Monday, February 17th
Spring recess (No class)	- Monday, March 16th - Friday, March 20th
Prince Kuhio Day (Holiday)	- Thursday, March 26th
Farm festival (recommended to attend)	- To be announced (extra points for an active involvement)
Good Friday (Holiday)	- Friday, April 10th
Last day of instruction	- Thursday, May 7th
Final Examination Week	- Monday, May 11th- Friday, May 15th

Course content (subject to change)

Introductions, review of plant science and general botany, breadfruit in Hawaii/Ulutopia

Root, stem and leaf

Plant structure, cells, tissues, and body, flowers

Flowers and fruits, plant classification

Cell division, vegetative and reproductive growth and development

Plant propagation

What did I learn in HORT 262 (review)?

Photosynthesis, respiration and translocation

Soil and water management and mineral nutrition

Soil and water management and mineral nutrition (contd.), soil sampling for entomopathogenic nematodes (EPN) survey

Organic nutrition and fertilizer calculation

Pest management (observation and exercise)

Horticultural crops (fruits, vegetables)

Student presentation (04/28-05/07/2020)

The order of course content might be changed based on students understanding.

Specific Hands-on Activities

- 1) Greenhouse project- propagating/growing poinsettia / growing a staple crop, rice (*Oryza sativa*)**
- 2) Field project - managing garden plots and the papaya field**
- 3) Individual field or greenhouse project - comparing horticultural practices

Suggested Topics for Presentation Project (Oral Presentation)

1. Introduction, methodology, results and conclusion of your individual/group project (**recommended**)
2. Nutrients for plant growth, disease management and production
3. Organic fertilizers or organic materials for plant growth, disease management and production
4. Cover cropping approaches / cover crops (such as sunn hemp, marigold, radish, cowpea etc.)
5. Tillage, its importance for plant growth, tillage tools and tilling approaches
6. Irrigation management
7. Production technique for a selected horticultural crop (such as mango, breadfruit, pineapple, tomato, potato, eggplant, taro etc.)
8. Insect, disease and/or weed management approaches
9. Internship report
10. Varietal description of a selected tropical plant (such as taro, banana, breadfruit, mango, litchi/lychee, longan etc.)
11. Plant propagation technique (such as cutting, grafting, layering etc.)
12. Approaches for breaking seed dormancy
13. Floriculture
14. Tissue culture
15. Greenhouse management
16. Post-harvest techniques
17. Marketing for horticultural crops
18. Value added horticultural products
19. Indigenous knowledge in horticulture
20. Introduction to a(n) horticultural/agricultural farm / farm management
21. A horticultural research or production proposal
22. Farm business plan

Methods of instruction

1. Class activities will be collaborative learning, reading, writing, problem solving, discussion, research, self-assessment, multi-media, computers, guest speakers, and supplementary materials.

2. Lab activities will be hands-on, individual and group based work.

Course Grading

Examinations. Students will be graded on five quizzes, two written 1-hour midterm exams, weekly journals, heritage plant assignment, how to grow garden assignment, final 10-minute class presentation and attendance. The 2-written mid-term examinations will involve a variety of short-answer or objective-type questions. These will evaluate the students' ability to integrate and summarize the knowledge that they have acquired throughout the course. Two quizzes will proceed each midterm.

Heritage Plant Assignment. In 2015, US News & World Report ranked The University of Hawaii at Hilo as #1 for Campus Ethnic Diversity among National Liberal Arts Colleges. To celebrate this, our Hort 262 class has a heritage plant assignment due at the middle of the semester. Students are asked to:

- choose: a country or region of the world of their heritage
- choose a vegetable or food plant of their heritage
- search the web for a topographic map of the region or a map showing where the plants or vegetables are grown.
- write **2 pages** describing the plant or vegetable and how it is grown
- include the map in their paper
- include a recipe or how the plant or vegetable is used
- try to order seeds or obtain plants to grow in their garden

Laboratory Notebooks and Photographs (weekly journals) (1-2 pages each).
Summary. Each student should maintain organized records of all activities undertaken in each of the scheduled laboratories. This will include the following but not limited to: Date, times, cultivar and scientific names of plants handled and observed, locations, presenters, hosts, methods and materials used, practices observed and undertaken and personal insights. Journal entries should be made for each lab and are intended for use in the future to remember how you grew a crop or did a technique. You will need this journal to write a final report entitled "**How to grow a Garden**" (**compilation of weekly journals**) that is due at the end of the semester. You should keep the original, because it is intended for you to have when someone asks you how to grow a garden. It should contain the following items:

- How to set up the garden arrangement of crops by height and spacing
- Method of planting (direct or transplant), fertilizers and placement
- Crop, cultivar (cultivated variety), times to harvest
- Plant spacing
- Date of first harvest
- Maintenance activities (fertilization, weeding, watering, etc.)
- Pest management, techniques to employ
- Overall comments and evaluation (may include photos)

Electronic documents (submitted via laulima) are acceptable. Two-point deduction per day will be assessed for late submissions.

Presentation project

1. Each student will conduct an individual research in greenhouse (or garden plot), record data, review relevant published information, prepare power-point slides and present.

OR

2. Instead of presenting shadehouse research results, if a student is interested on other topics, s/he can review horticulture-related published information, prepare power-point slides, present and submit a 1-2 page(s) written report.

Attendance. Roles

Evaluation

GRADING ITEM	DUE DATE/WEEK	POINTS AVAILABLE
Information festival (test) 1	7th week (02/25/19)	100
Information festival (test) 2	13th week (04/14/19)	100
Farm festival (show your activity)	To be announced	10 (extra points)
Quizzes Quiz 1: 01/23/2020 Quiz 2: 02/06/2020 Quiz 3: 03/12/2020 Quiz 4: 04/02/2020 Quiz 5: 04/23/2020	20 points × 5 quizzes	100
Heritage plants	11th week (03/31/2020)	50
How to grow garden (compilation of weekly journals)	16th week (05/07/2020)	50
Garden evaluation	To be announced	100
Attendance (+ weekly journal)	15 weeks × 10 points	150
Final presentation	10 minutes talk	50
Total points		700

Grading scale

94-100%	A
90-93.9%	A-
87 – 89.9%	B+
84-86.9%	B
80-83.9%	B-
77 – 79.9%	C+
74-76.9%	C

70-73.9%	C-
67 – 69.9%	D+
60-66.9%	D
59.9% or below	F

Sudden information festival (Test)s and assignments

1. Occasionally, students are requested to submit extra assignments and participate in unannounced Information festivals (Tests).
2. Results of unannounced Information festival (Test)s will be used to improve teaching-learning process.
3. Scores of extra assignments will be included as ‘bonus points’.

Make-up Information festival (Test)s

1. A doctor’s certificate is needed for a make-up Information festival (Test) due to illness.
2. Prior approval from the instructor is needed for non-medical reasons for missing the Information festival (Test).
3. Make-up Information festival (Test)s will be different from the class Information festival (Test)s.

Withdrawals

1. Students are responsible for withdrawals. Deadlines for withdrawals are set by college.
2. Students quitting class without official withdrawal will receive an "F" grade.

Lab safety rule: Covered shoes and long pants are required.

Schedule change:

Instructor may change the order or content of the lectures and/or labs if he/she feels that such changes will benefit the class. Students will be informed in advance in case of such changes.

Policies and Procedures

SUPPORT AVAILABLE FOR STUDENTS

Link to document that can be added to syllabi:

<http://go.hawaii.edu/zAf>

ACCOMMODATIONS: Any student with a documented disability who would like to request accommodations should contact the Disability Services Office - Student Services Center E230, 932-7623 (V), 932-7002 (TTY), uds@hawaii.edu - as early in the semester as possible.

CAFNRM Policy due to limited space and noise levels - Students who require additional time and/or a noise free test environment will need to take tests at the testing center or have disability services make other accommodations.

PLAGIARISM: "Plagiarism" is the use of someone's words or ideas without proper documentation. Even paraphrasing someone else's work without reporting the source constitutes plagiarism. Protect yourself from being suspected of plagiarism by documenting your sources. If your paper is found to be plagiarized, you will receive an automatic "0" (no points) for the assignment.

ACADEMIC SUCCESS: Kilohana: The Academic Success Center provides a range of free, drop-in academic services and resources to all currently enrolled UH Hilo students. Services include access to peer student staff from a range of academic majors, course related resources (handouts, practice exams, etc.) PC desktops with subject specific software, and study environments for individuals and small groups. Please check the Kilohana website at <https://hilo.hawaii.edu/kilohana/> for information, locations, and contact phone numbers for our various Centers on campus. You can also call 932-7287 (Karla Hayashi) or 932-7294 (Lindsay Heller) for more information.

HUMAN RIGHTS: The University of Hawaii at Hilo prohibits discrimination in its education programs based on race, national origin, color, creed, religion, sex, age, disability, veteran status, sexual orientation, gender identity or associational preference. If at any time during class you feel uncomfortable about what is being talked about, or feel that your human rights have been violated, please feel free to leave the room. However, I ask that you confer with me as soon as possible about what happened so that appropriate action can be taken if necessary to avoid future problems. If you are uncomfortable speaking with me about your concern, please contact Jennifer Stotter (jstotter@hawaii.edu), EEO/AA Director, at 932-7641.

SEXUAL ASSAULT POLICY: UH Hilo provides confidential assistance for victims of sexual assault. Counseling Services on campus and the YWCA Sexual Support Services offer guidance regarding medical and emotional help and can discuss options for reporting sexual assaults to law enforcement. All conversations are private and confidential. The UH Hilo Sexual Assault Policy can be found at <http://hilo.hawaii.edu/uhh/vcsa/documents/UHHSexualAssaultPolicy.pdf>. For assistance during the day, contact UH Hilo Counseling Services at 808.932.7465. For after hours and on weekends, contact the WYCA Sexual Assault Support Services at 808.935.0677.

MENTAL HEALTH/SUICIDE PREVENTION: The UH Hilo community is committed to and cares about all students. Life at college can get complicated. Students sometimes feel overwhelmed, lost, experience anxiety or depression, struggle with relationship difficulties, family responsibilities, or diminished self-esteem. However, supportive services are available and effective. UH Hilo Counseling Services helps undergraduate and graduate students cope with difficult emotions and life stressors. Counseling Services is staffed by experienced, professional counselors, who are attuned to the diverse needs of all types of college students. The services are FREE and completely confidential. Find out more at <https://hilo.hawaii.edu/studentaffairs/counseling> or by calling (808) 932-7465.

For immediate help, contact The Crisis Line of Hawaii [1-800-753-6879](tel:1-800-753-6879), the National Suicide Prevention Hotline [1-800-273-8255](tel:1-800-273-8255) (suicidepreventionlifeline.org), or text “Aloha” or “Hello” to the Crisis Text Line [741-741](tel:741-741).

ADVISING: Advising is a very important resource designed to help students complete the requirements of the University and their individual majors. Students should consult with their advisor at least once a semester to decide on courses, check progress toward graduation, and discuss career options and other educational opportunities provided by UH Hilo. Advising is a shared responsibility, but students have final responsibility for meeting degree requirements. Please feel free to contact the Advising Center at 808.932.7776.

STUDENT CONDUCT: Students are expected to follow the University of Hawai'i at Hilo Student Code of Conduct available at the following URL:
<http://www.uhh.hawaii.edu/catalog/student-conduct-code.html>

TITLE IX: USA University Disclosure

The University of Hawaii is committed to providing a learning, working and living environment that promotes personal integrity, civility, and mutual respect and is free of all forms of sex discrimination and gender-based violence, including sexual assault, sexual harassment, gender-based harassment, domestic violence, dating violence, and stalking. If you or someone you know is experiencing any of these, the University has staff and resources on your campus to support and assist you. Staff can also direct you to resources that are in the community. Here are some of your options:

If you wish to remain **ANONYMOUS**, speak with someone **CONFIDENTIALLY**, or would like to receive information and support in a **CONFIDENTIAL** setting, contact:

UH Hilo Counseling Services: SSC, room E-203. 932-7465.
UH Hilo Medical Services: Campus Center, room 212. 932-7369
Hawaii Island YWCA, 935-0677

If you wish to **REPORT** an incident of sex discrimination or gender-based violence including sexual assault, sexual harassment, gender-based harassment, domestic violence, dating violence or stalking as well as receive information and support*, contact:

Libby Bailey, Title IX Coordinator: 932-7818 libby.bailey@hawaii.edu

Jennifer Stotter, Director of the Office of Equal Opportunity & Deputy Title IX Coordinator: 932-7641 jstotter@hawaii.edu

Kalei Rapoza, Interim Vice Chancellor of Administrative Affairs, 932-7650
kaleihii@hawaii.edu

* Please note that you do not have to file a report with the University to receive institutional support or assistance.

As a member of the University faculty, I am **required to immediately report** any incident of sex discrimination or gender-based violence to the campus Title IX Coordinator. Although the Title IX Coordinator and I cannot guarantee confidentiality, you will still have options about how your case will be handled. My goal is to make sure you are aware of the range of options available to you and have access to the resources and support you need.

For more information regarding sex discrimination and gender-based violence, the University's Title IX resources and the University's Policy, Interim EP 1.204, go to: <http://www.hawaii.edu/titleix>