ORCHID CULTURE Ag152

3 Credits (CRN 60309)
WWW and Virtual Course
C19 and DB

INSTRUCTOR: Teena Michael PhD
OFFICE: Hale Palanakila 142
OFFICE HOURS: In-person meeting by appointment only
Zoom meeting Topic: Orchids!
Join Zoom Meeting. https://hawaii.zoom.us/j/93584835038
Meeting ID: 935 8483 5038 Passcode: ORCHIDS
TELEPHONE: (808) 236-9114 EMAIL: teena@hawaii.edu
EFFECTIVE DATE: Fall 2021

WINDWARD COMMUNITY COLLEGE MISSION STATEMENT

Windward Community College offers innovative programs in the arts and sciences and opportunities to gain knowledge and understanding of Hawai‘i and its unique heritage. With a special commitment to support the access and educational needs of Native Hawaiians, we provide the Ko‘olau region of O‘ahu and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.

CATALOG DESCRIPTION

An extensive study of orchid identification, breeding, growth and tissue culture. Students are required to develop and present a research project and participate in an orchid society event.

Requirement course satisfies:
AT WCC: (http://windward.hawaii.edu/Courses/BOT130/)
Associate in Arts - Biological Sciences (DB)

CA Agripharmatech: Ethnopharmacognosy (Requirement)
(http://windward.hawaii.edu/Academics/Agripharmatech_CA/) CO
Agripharmatech: Ethnopharmacognosy (Elective)

https://catalog.windward.hawaii.edu/agriculture/agripharmatech

After completing the Agripharmatech Certificate Program, students will be able to:

- Apply knowledge gained in plant sciences: identify plants, propagate/cultivate/maintain plants in vivo and in vitro
- Apply knowledge gained in microbial sciences: prepare/maintain bacterial cultures for genetic transformation and bioassay tests
- Conduct plant biotech and/or pharmacognosy research

Windward Community College is an equal opportunity, affirmative action institution.
AT UH Manoa:

- Bachelor of Science Degree in Tropical Plant and Soil Science (TPSS)
- Bachelor of Science Degree in Plant and Environmental Biotechnology (PEB)
- Accepted as an elective for the following specializations: Plant Biotechnology, General Biotechnology, and Environmental /Microbial Biotechnology

Activities Required at Scheduled Times Other than Class Times

- Attend Orchid Society meetings which are virtual during this pandemic.
- Work with each other to answer and address content and applications from class and to develop projects. Group work is not required however!
- Students are expected to grow an orchid if at all possible!

STUDENT LEARNING OUTCOMES

As a result of taking this course, students can expect to attain the following outcomes:

1) Identify orchid species AND hybrids
2) Provide cultural requirements for specific genera, including temperature, light intensity, humidity, watering, fertilizing, media composition, pest/disease control and repotting.
3) GROW or understand how to grow diverse orchids.
4) Perform or watch and understand orchid breeding and discuss the economic importance.
5) Look closely at and understand orchid flowers relative to what is distinct about the family with special appreciation for the relationships between pollinators and the flower...and the significance of this.
6) Conduct research and make class presentations presentations.

COURSE CONTENT

The course is designed to introduce the botany of orchids with respect to their unique flowers, diversity, distribution with both scientific and practical perspectives that are geared toward diverse students. Orchid societies and our class support diverse aspects of this large...diverse...beautiful...group of plants including growth of diverse orchids. Understanding the basis of plant growth in general and orchids in particular fuel our understanding of where then uniquely grow so that we can replicate conditions as possible. Sexual reproduction and cloning of orchids are foci of our course.

COURSE TASKS, ASSESSMENT AND GRADING

Note! The diversity of our assignments supports the successes of diverse learners.

Your final grade is based on:

1) OPTIONS:
   - Choose 2 journal options over our semester. I will propose some ideas and but encourage you to choose your own. The journal topics you choose can support your project near the end of the semester.  **30 points**
   - Forums (4 at 10 points each)  **40 points**
   - Worksheets (6 at 15 points each)  **90 points**
   - Assignments/Quizzes  **35 points**
   - Growing YOUR orchid and Photo Essay.  **50 points**
   - HOS meeting reports/reflections (2)  **50 points**
   - Project and Presentation Growing Orchids OR Orchid Pests.  **25 points**
   - Final Project and Presentation (Group or Individual)  **30 points**
   - Midterm exam  **100 points**
   - Final exam  **125 points**

Total  **575 points**

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Windward Community College is an equal opportunity, affirmative action institution.
Students will receive a letter grade based on the following scale:
A = 90-100%   B = 80-89%   C = 70-79%   D = 60-69%

**I (incomplete) grade** is given at the instructor’s option when a student has failed to complete a small part of a course because of circumstances beyond student's control. It is the student’s responsibility to contact the instructor to make up the incomplete work with a minimum level (or better) of achievement. Failure to satisfactorily make up incomplete work within the appropriate time period will result in a grade change for “I” to the contingency grade identified by the instructor.

* Zoom sessions will be offered to discuss *the material and *news as relates to our class. Sessions that ARE the content lectures will be recorded and posted for review and/or for those that cannot attend.

** Elect activities that total 25 points. **Requirements for each are described below and *declare your choices to me! The first journal is due *5 September in Lauhima Assignments by midnight.

*Consistent attention to the lectures, resources, discussions and assignments/quizzes is necessary to learn the information and to perform well in exams.

*Tests will be made up of jeopardy, multiple choice, short answer, short essays and drawings. Worksheets are basic study guides for the exams—the will be posted as Assignments.

* The last day to Withdraw (W) from class is 11/1/21.
* See catalog for specifics and calendar for dates in general and for I grades and NC grades. Taking this class as Credit/No credit is an option.

**Worksheets/Exams**

Worksheets in the style of the exams will be added as assignments throughout the course.

Successful performance on the exams will require that you can recall, analyze, problem solve and understand the information presented in class. The worksheets are designed to aid you in these processes.

*I encourage you to work with each other in Google Drive (for example). To do this you need to agree to be constructive (not delete or hamper the work of each other) and contribute! I am available to interact with the class also on Google Drive. You can also set up your own Google Drive documents and invite your friends/colleagues. Worksheets are not graded but are *important in understanding the material and *key to doing well on exams.

Note—I encourage you NOT to add multiple choice components of worksheets to common documents since if you (or I) see the correct answer—we will not go through the *steps of trying to figure it out—the steps of learning.

**Journal OPTIONS** are 15 points each and 3 options are listed here—you are free to create and complete your own options!

OPTION 1. How have orchids been incorporated in art?

OPTION 2. How have orchids been incorporated in food and/or drugs/medicines?

OPTION 3. Orchids and pollinators—how do they influence each other?

**PROJECT Guidelines**

Class project/presentation (individual or group)! Work alone or with a partner to develop and present a project in zoom during virtual class discussions or outside of virtual class with Dr. M. Recorded presentations will be posted in Resources of laulima for others to view and study.

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Examples of previous presentations follow. You can choose same topic and of course—do you own research and presentation:

- Black Orchids
- Light Variance in Orchid Growing
- The Dragon Orchid
- Edible Orchids
- Lady Slipper Orchids
- Native Hawaiian Orchids
- Orchid Conservation
- Dancy Lady Orchids
- Vanilla Orchids
- Orchids in Oriental Art
- Native Hawaiian orchids

LEARNING RESOURCES

I do not require that you purchase a text book for our class. I will provide resources and encourage you to apply your skills in web research to find information including YouTubes that are abundant for many orchids.

I will also provide lectures from the Honolulu Orchid Society which I strongly encourage you to join!

The Honolulu Orchid Society (HOS) Meetings are held on the second Wednesday of each month except for the month of January when the Society has its Annual Installation Banquet.

The meetings start at 7:00 PM in the Lanakila Elementary School Cafeteria located at 717 North Kuakini Street, Honolulu, HI 96817 when ‘we’ can return to group meetings.

The meetings are now ‘virtual’ and conducted on zoom.

Please refer to the website to explore what the HOS is and does.

Some of our classes will BE participation in HOS meetings which include lectures from orchid growers and span a range of topics and plants.

Please sign up to receive the newsletters. Members are taking pictures of blooming orchids and those pictures are available by email. I will incorporate some of the orchids/images in our studies as well as knowledge from the growers including at least one former student! There are many orchid societies on Oahu—“ours” is primarily HOS.

https://www.honoluluorchidsociety.org/membership-application-form/

You do not need to join the HOS to participate in meetings. I do encourage you to join however—it is good to be part of something (class included!). Membership for students is $10. IF you want to join and this is too much…the Agripharmatech group can help out—just send me an email.

Note! For FUTURE reference (beyond the pandemic), Orchid shows: http://www.honoluluorchidsociety.org/hawaii-orchid-shows/
Book options:
These books are available through American Orchid Society. I am a member and so can order for you if you want to purchase a book, at a discount. The first book is excellent—the others are new to me and I have the first three.

These are books that I enjoy from the AOS:

Another excellent book is available on Amazon for ~$10 as a used book
DISABILITIES ACCOMMODATIONS

If you have a physical, sensory, health, cognitive, or mental health disability that could limit your ability to fully participate in this class, you are encouraged to contact the Accessibility Counselor to discuss reasonable accommodations that will help you succeed in this class. Roy Inouye can be reached at (808) 235-7448, royinouy@hawaii.edu, or you may stop by Hale Kākoʻo 106 for more information.

SEX DISCRIMINATION AND GENDER-BASED VIOLENCE RESOURCES (TITLE IX)

Windward Community College 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, WCC has staff and resources to support and assist you. To report an incident of sex discrimination or gender-based violence, as well as receive information and support, please contact one of the following:

UH Confidential Advocate
Phone: (808) 348-0663
Email: Advocate@hawaii.edu

Karla K. Silva-Park, Title IX Coordinator
Phone: (808) 235-7468
Email: karlas@hawaii.edu
Office: Hale Kākoʻo 128

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 manoa.hawaii.edu/titleix/

Nondiscrimination and Affirmative Action

The University of Hawaii is committed to a policy of non-discrimination on the basis of race, sex, age, religion, color, national origin, ancestry, disability, marital status, arrest and court record, sexual orientation, or veteran status in all of its programs, policies, procedures, or practices. This policy covers admission and access to, participation, treatment and employment in university program and activities.

ALTERNATE CONTACT INFORMATION

Windward Community College is an equal opportunity, affirmative action institution.
If you are unable to contact the instructor, have questions that your instructor cannot answer, or for any other issues, please contact the Academic Affairs Office:

- Location: Alaka‘i 121
- Phone: (808) 235-742

**FALL 2021 SCHEDULE**

<table>
<thead>
<tr>
<th>DATE</th>
<th>Lecture Topic</th>
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<tbody>
<tr>
<td><strong>Weeks 1 &amp; 2</strong></td>
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<tr>
<td>Aug 23-Sept 5</td>
<td>Introduction to orchids &amp; class!</td>
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<td>Orchid terminology—flower basics</td>
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<td><strong>Week 3</strong></td>
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<tr>
<td>Sept 6-12</td>
<td>Introduction to orchid growing</td>
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<td><strong>Week 4</strong></td>
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<td>Sept 13-19</td>
<td>Orchid pollination</td>
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<td>Orchid and fungi</td>
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<td><strong>Week 5</strong></td>
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<tr>
<td>Sept 20-26</td>
<td>Orchid taxonomy &amp; identification</td>
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<td>Sub Families Epidendroid &amp; Dendrobioid</td>
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<td><strong>Week 6</strong></td>
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<td>Sept 27-Oct 3</td>
<td>Sub Family Cypridendioideae</td>
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<td>Identification and growing</td>
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<td>Tribes Vandaea &amp; Collabieae</td>
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<td>Identification and growing</td>
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<td><strong>Week 7</strong></td>
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<td>Oct 4-10</td>
<td>Sub fam. Cymbidioi, Tribe Cymbidieae</td>
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<td>GROWing Project—How do YOU grow YOUR favorite orchid? Why?</td>
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<td><strong>Week 8</strong></td>
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<tr>
<td>Oct 11-17</td>
<td>Orchid genetics</td>
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<td>Orchid genetics &amp; pedigrees</td>
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<td><strong>Week 9</strong></td>
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<td>Oct 18-24</td>
<td>Orchid identification and review for Midterm</td>
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<td>Midterm Exam</td>
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<td><strong>WEEK 10</strong></td>
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<tr>
<td>Oct 25-31</td>
<td>Traditional propagation (greenhouse)</td>
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<td>Growing, fertilizing, pests/diseases (green house)</td>
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<td><strong>WEEK 11</strong></td>
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<td>Nov 1-7</td>
<td>Seedling transplanting and culture assessment</td>
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<td>Growing and Pest projects</td>
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<td><strong>WEEK 12</strong></td>
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<td>Nov 8-14</td>
<td>Growing and Pest projects</td>
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<td><strong>WEEK 13</strong></td>
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<td>Nov 15-21</td>
<td>Media Preparation &amp; In vitro propagation (demo or DO)</td>
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<td><strong>WEEK 14</strong></td>
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<td>Nov 22-28</td>
<td>In vitro propagation (video) in class</td>
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<td>Tissue culture practicum (seed, embryo, ovulary cultures, meristem, inflorescence and stem culture) or web research and design</td>
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<td><strong>WEEK 15</strong></td>
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<td>Nov 29-</td>
<td>Orchid hybrids and lineages</td>
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<td>Dec 5</td>
<td>Projects!</td>
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<td>Plant Identification, orchid genetics, breeding and problem solving</td>
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<td><strong>WEEK 16</strong></td>
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<tr>
<td>Dec 6-9</td>
<td>Plant Identification, orchid genetics, breeding and pedigree (problem solving)</td>
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<td>Class presentations and practice for final</td>
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<tr>
<td>Dec 13-17</td>
<td>Final Exam</td>
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The schedule may be modified as we proceed. I will announce any changes ahead of time. Have a great semester!