

**BOT 101 General Botany (CRN 61058)
(Lecture/Lab)**

4 Credits

MW 8:30 – 11:00 am, Hale Imiloa 101

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|------------------------|---|
| INSTRUCTOR: | Dr. Hongwei Li |
| OFFICE: | Hale Imiloa 107 |
| OFFICE HOURS: | Monday 11:10 am – 12:10 pm, walk-in or by appointment |
| TELEPHONE: | (808) 236-9104 |
| EFFECTIVE DATE: | Fall 2017 |

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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 O'ahu's Ko'olau region and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.

CATALOG DESCRIPTION

Introduction to plant structure, function, reproduction, and evolution; plants in relation to the environment and human activities. Lecture/laboratory/field trip course.

WCC: AA (DB/DY), CA Agripharmatech

Activities Required Other Than Class Times

Preparation of assignments for lectures/labs; possible field trip or campus activity during class time.

STUDENT LEARNING OUTCOMES

The student learning outcomes for the course are:

- Discuss basic concepts and perform lab experiments in plant morphology, anatomy, physiology, cytology, taxonomy and genetics.
- Discuss life cycles of division in Protista, Fungi, Bryophyta, Pteridophyta, Gymnosperms, and Angiosperms.
- Discuss interrelationship between plants and animals, and socio-economic importance of plants on humans.
- Discuss plant tissue culture & biotechnology.
- Operate dissecting and compound microscopes.
- Discuss traditional and *in vitro* plant propagation.

COURSE TASKS AND GRADING

- Class attendance is mandatory.
- Students are expected to read the assigned chapters before coming to class.

Exams

- **Midterm Exams:** There are two midterm exams, and each includes contents from both lectures and labs.
 - Make-up exam: make-up exam will be permitted only when there is a legitimate excuse (such as illness or emergency; doctor's note is required).
- **Final Exam:** is accumulative, includes contents from lectures and labs. **No early or make-up exam for the final.**

Quizzes/assignments

- There are 5 quizzes/assignments will be given, and the time will be announced at least one week ahead.

Lab Reports

- Submit a lab report for each lab (Title, introduction, materials and methods, results and discussions). The lab reports are due before each midterm or the final exam.

Presentation on a course-based research project:

- Conduct research on a given topic and present in class.

Grading

| Tasks | Possible Points |
|---------------------------|-----------------|
| Quizzes / Assignments (5) | 100 |
| Midterm Exam (2) | 200 |
| Final Exam | 150 |
| Lab Reports | 100 |
| Project Presentation | 50 |
| ----- | |
| Total possible points | 600 |

- Grading is based on the percentage of total points earned. Final Grades will be assigned as follows:

| | | | | | |
|---|-----------|---|----------|---|---------|
| A | 90 – 100% | B | 80 - 89% | F | 0 - 59% |
| 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 his or her control. The student is expected to complete the course by the designated deadline in the succeeding semester. If this is not done, the I grade will revert to the contingency grade identified by the instructor.

LEARNING RESOURCES

Required Textbook

- Introductory Botany Plants, People, and the Environment. L. Berg, 2008, 2nd edition.

Lecture / Lab materials

<https://windwardcc.instructure.com/login/canvas> or <https://laulima.hawaii.edu/>

DISABILITIES ACCOMMODATION STATEMENT

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 Disability Specialist Counselor to discuss reasonable accommodations that will help you succeed in this class. Ann Lemke can be reached at 235-7448, lemke@hawaii.edu, or you may stop by Hale 'Akoakoa 213 for more information.

Schedule: BOT 101 General Botany (Lecture and Lab) Fall 2017

| Date | Chapter | Topic | Lab |
|--------------|----------------|--|--|
| Week 1 | 1/2 | Introduction /The Chemical Composition of Cells | Lab 1: Lab Safety/Dissecting Microscope |
| | 2 | The Chemical Composition of Cells | Lab 2: Compound Microscope |
| Week 2 | 2 | The Chemical Composition of Cells | Lab 3: Chemical Composition of Cells / pH |
| | 3 | Plant Cell Structure | Lab 4: Plant Cells |
| Week 3 | 5 | Plant Tissues and the Multicellular Plant Body | Lab 5: Plant Body and Tissues |
| Week 4 | 6 | Plant Organs: Roots | Lab 6: Roots |
| | 7 | Plant Organs: Stems | Lab 7: Stems |
| Week 5 | 8/10 | Plant Organs: Leaves /Transport of Water & Mineral Nutrient | Lab 8: Leaves |
| | 9 | Flowers, Fruits, & Seeds | Lab 9: Flowers |
| Week 6 | 9 | Flowers, Fruits, & Seeds | Lab 10: Fruit & Seeds |
| | | Exam 1 (09/27) | Turn in Lab Reports |
| Week 7 | 4 | Metabolism in Cells | Lab 11: Transpiration |
| | 4 | Metabolism in Cells | Lab 12: Photosynthesis |
| Week 8 | 11 | Growth Responses and Regulation of Growth | Lab 13: Plant Hormones & Tissue Culture 1 |
| | 11 | Growth Responses and Regulation of Growth | Lab 13: Plant Hormones & Tissue Culture 2 |
| Week 9 | 12 | Mitosis, Meiosis and Life Cycles | Lab 14: Cell Division |
| | 13 | Patterns of Inheritance | Lab 15: Principles of Genetic Inheritance |
| Week 10 | 14/15 | Molecular Basis of Inheritance | Lab 16: DNA Extraction |
| | 16/17 | Evolution | Lab 17: Plant DNA Sequence Databases and Analysis Tool |
| Week 11 | 16/17 | Evolution | Lab 18: Evolution in Hawaiian Plants: Phylogenetic Analysis |
| | | Exam 2 (11/01) | Turn in Lab Reports |
| Week 12 | | Bioprocessing Medicinal Garden Complex | |
| | 18/19 | Classification of Plants & Other Organisms/ Introduction to Viruses and Bacteria | Lab 19: Bacteria |
| Week 13 | 20 | Introduction to Kingdom Protista | Lab 20: Algae |
| | 21 | Introduction to Kingdom Fungi | Lab 21: Fungi |
| Week 14 | 22 | The Plant Kingdom: Bryophytes | Lab 22: Mosses & Liverworts |
| | 23 | The Plant Kingdom: Seedless Vascular Plants | Lab 23: Ferns |
| Week 15 | 24 | The Plant Kingdom: Gymnosperms | Lab 24: Gymnosperms |
| | 25 | The Plant Kingdom: Flowering Plants | Lab 25: Angiosperms |
| Week 16 | 26/27 | Ecosystems/ Global Ecology and Human Impact | |
| | | Project Presentation and Review | Turn in Lab Reports |
| 12/13 | | Final Exam 8:30 - 10:30 am | |

(Please note that this schedule is subject to change)