

Windward Community College

## Outline of Course Objectives

### BIOL 172L (CRN 60120) Intro to Biology Lab

Spring 2014

Wed. 5:30-8:30

**INSTRUCTOR:** Michelle Smith

**EMAIL:** miliefsk@hawaii.edu

**OFFICE:** Imiloa 136

**OFFICE HOURS:** TR 11-11:30; W 4:30-5:30pm

**Lab Location:** Imiloa 103

**CREDITS:** 1 credit (3 hour lab)

**INSTRUCTOR'S WEB PAGE FOR Labs:** <http://www.wcc.hawaii.edu/facstaff/miliefsky-m/>

#### **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**

Laboratory to accompany BIOL 172. (3 hours laboratory)

Co-Requisite(s): BIOL 172.

Recommended Preparation: High school biology and college level reading and writing skills.

#### **STUDENT LEARNING OUTCOMES**

***By the end of this class, the student should be able to***

1. Use the scientific method of inquiry to investigate biological phenomena.
2. Apply the concepts learned in BIOL 172 to an experimental and hands-on observational setting.
3. Collect, reduce, and interpret biological data.
4. Prepare written objective reports describing and interpreting experimental and observational results.
5. Apply standard analytical procedures for the comparative study of plants and animals, such as the handling of living and preserved materials for study, dissection procedures, preparation of materials for microscopic examination, and use of dichotomous keys.
6. Identify the diagnostic anatomical features of organisms representing major groups of plants and animals.
7. Identify the major systematic groups to which specimens of plants and animals belong.

### ***Concepts or Topics***

- Biology, anatomy, diversity and systematics of algae and fungi
- Biology, anatomy, diversity and systematics of higher plants.
- Adaptations of plants to the terrestrial environment.
- Anatomy and micro-anatomy of tracheophyte structure (stems, roots & leaves), including monocot/dicot differences.
- Identification of some common native Hawaiian plant species.
- Animal body plans in relation to the higher systematics of animals
- Dichotomous keys.
- Biology, anatomy, diversity and systematics of mollusks, annelids, arthropods, echinoderms and chordates
- Mammalian anatomy.

### ***Skills or Competencies***

- Maintain a laboratory notebook that adequately documents laboratory activities.
- Make macroscopic and microscopic observations about the anatomy and morphology of plants and animals.
- Dissect animals and plants to understand the details of their anatomy.
- Draw figures illustrating observations and present these figures in a manner suitable for publication in a scientific journal.
- Write summaries of laboratory activities, documenting these activities and demonstrating an understanding about the significance of the results.
- Write a scientific research review paper and a biological topic.
- Use a dichotomous key to identify living organisms.
- Ability to determine the classification of an organism by identifying its diagnostic features that place it into a particular group.
- Recognize the features of an organism that make it well-suited for survival in its environment.
- Recognize and identify key anatomical features of plants and animals.

## **COURSE TASKS, ASSESSMENT AND GRADING**

***LABORATORY NOTEBOOK (120 pts)***. The student will maintain a laboratory notebook to record all notes, observations, and information gathered before and during laboratory activities. You will need 4 lab notebooks that are alternated between. They can be found at Longs Drugs as a composition book (\$1). Two need to have lines and two are blank for illustrations. These notebooks must be brought to every laboratory period.

**FAILURE TO BRING THE LAB NOTEBOOK PROPERLY PREPARED FOR THE DAY'S LAB ACTIVITY WILL RESULT IN A 5 POINT REDUCTION IN THE STUDENT'S TOTAL POINTS FOR EACH OCCURRENCE.**

***LABORATORY SUMMARIES (360 pts).*** The student will complete a total of 12 written laboratory summaries (30 points each). Each summary must be completed and turned in no later than the beginning of the first laboratory meeting after the assignment was given. The production of laboratory summaries should be considered an individual student task. The sharing of data tables and graphs between students is considered a form of plagiarism and is inappropriate. Answer all questions pertaining to the lab and define vocabulary (typed). When a full lab report is required be sure to include the Purpose Statement, Background Information, Procedures, Results (with tables, figures or pics), and Discussion.

**LATE SUMMARIES RECEIVED WITHIN ONE WEEK OF THE DUE DATE WILL BE ASSESSED AN AUTOMATIC PENALTY OF 5 POINTS. SUMMARIES WILL NOT BE ACCEPTED IF SUBMITTED MORE THAN ONE WEEK FOLLOWING THE DUE DATE.**

***PRE-LAB QUIZZES (55 pts).*** The student will take a total of 11 pre-lab quizzes (5 points each) at the beginning of laboratory meetings. These quizzes will test the student's knowledge of and preparation for the laboratory exercise planned for that day. These quizzes will be posted the instructor's website:

**[www.wcc.hawaii.edu/facstaff/miliefsky-m/](http://www.wcc.hawaii.edu/facstaff/miliefsky-m/)** (go to the BIOL 172 Lab site). By reading through the lab assignment you should be able to answer all of the questions when you arrive for the quiz, which should take no more than 5 minutes.

**No make-up quizzes for any lab will be administered. Do not be late or you will not be able to take the quiz.**

***LABORATORY PRACTICAL EXAMS (465 pts).*** The student will take two laboratory practical examinations (232.5 points each) to demonstrate acquisition of laboratory skills and a understanding of information presented during laboratories.

***LABORATORY ATTENDANCE.*** Regular attendance is expected. Because laboratories involve considerable set-up/take-down time and supervision, students will **NOT** be able to make up missed laboratory activities. A student missing a scheduled laboratory activity because of an illness or legitimate emergency may be given an alternative activity to make up lost lab summary points. In such a circumstance, the student is still responsible for the information presented during the missed laboratory session. Regardless of the reason, **A STUDENT MISSING MORE THAN TWO SCHEDULED LABORATORY SESSIONS WILL NOT RECEIVE CREDIT FOR THE COURSE.**

***LAB ATTIRE, CONDUCT AND HYGIENE.*** Because biology labs often involve working with hazardous materials and living organisms, students must dress appropriately. Students have the option to wear a lab coat and but must wear closed-toe shoes in the lab. Students may purchase a lab coat at the college bookstore. In addition, some lab activities will require students to wear gloves and safety glasses (provided by the college). Students failing to dress

appropriately for lab will not be permitted into the laboratory and will be considered to be absent for the missed lab activity. Students engaged in conduct that threatens the safety of themselves and others in the lab will be refused access to the lab for the remainder of the semester and will receive an "F" for the course. Students are also expected to clean up their workstations following the lab activities. Failing to do so will lead to a 5-10 point penalty depending upon the seriousness of the infraction.

***The assignment of points will be according to the following protocol:***

|                                  |                   |
|----------------------------------|-------------------|
| Practical Examinations (2)       | 465 points        |
| Pre-Lab Quizzes (11)             | 55 points         |
| Laboratory Notebook (12)         | 120 points        |
| <u>Laboratory Summaries (12)</u> | <u>320 points</u> |
| TOTAL                            | 1000 points       |

***Letter grades will be assigned as follows:***

**A** 90% or above in total points and not missing more than one scheduled laboratory activity.

**B** 80-89.9% of total points and not missing more than one scheduled laboratory activity.

**C** 65-79.9% of total points and not missing more than one scheduled laboratory activity.

**D** 55-64.9% of total points and not missing more than one scheduled laboratory activity.

**F** Below 55% of total points or informal or incomplete official withdrawal from course, or if a student misses more than one scheduled laboratory activity for reasons other than documented illness or emergency.

**I** Incomplete; given at the **INSTRUCTOR'S OPTION** when student is unable to complete a small part of the course because of circumstances beyond his or her control. It is the **STUDENT'S** responsibility to make up incomplete work. 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 (see catalog); may be issued if documented serious illness or emergency forces a student to miss more than one scheduled laboratory activity.

**CR** 65% or above in total points; the student must indicate the intent to take the course as **CR/NC** in writing by the end of the 10th week of classes (see catalog).

**NC** Below 65% of total points; this grade only available under the **CR/NC** option (see above and see catalog).

**N NOT GIVEN BY THIS INSTRUCTOR EXCEPT UNDER EXTREMELY RARE CIRCUMSTANCES** (e.g., documented serious illness or emergency that prevents the student from officially withdrawing from the course); may be issued if documented serious illness or emergency forces a student to miss more than one scheduled laboratory activity; never used as an alternative for an "F" grade.

**W** Official withdrawal from the course after the third week and prior to the end of the 10th week of classes (see catalog).

Waiver of minimum requirements for specific grades may be given only in unique situations at the instructor's discretion.

Students involved in academic dishonesty will receive an "F" grade for the course. Academic dishonesty is defined in WCC's college catalog.

## **LEARNING RESOURCES**

Descriptions of laboratory assignments and activities will be made available at the course website: [www.wcc.hawaii.edu/facstaff/miliefsky-m/](http://www.wcc.hawaii.edu/facstaff/miliefsky-m/), and/or distributed in class.

## **TEXTBOOK**

Adams, B. & Crawley, J. (2013). Van De Graff's Photographic Atlas for the Biology Laboratory (7th edition). Morton Pub. ISBN. 161731058-1 (~\$40)

## **STUDENT RESPONSIBILITIES**

Students should carefully review the attached sheet detailing inherently dangerous activities of this course and sign the appropriate U.H. Assumption of Risk and Release and Medical Consent forms.

Students are expected to participate in all laboratory activities and complete all course assignments on time.

Students are expected to be prepared in advance when they arrive to class. Being prepared includes the following: having already read text materials (e.g., textbook readings and handouts) assigned for that day's activities, bringing required work materials (e.g., lab notebook, textbook, handouts, writing supplies, etc.), and having completed any assigned pre-lab tasks.

Any changes in the course schedule, such as examination dates, deadlines, etc., will be announced ahead of time in class. It is the student's responsibility to be informed of these changes.

It is the student's responsibility to be informed about deadlines critical to making registration changes (e.g., last day of erase period and last day for making an official withdrawal).

The student should understand that BIOL 172L is a difficult course for students intending to major in one of the biological sciences. Thus BIOL 172L requires much time and serious dedication. If the student does not have a strong background or interest in science, the student does not belong in this lab course.

## **BIOL 172L LABORATORY ACTIVITIES**

Students enrolled in BIOL 172L are advised that certain required course activities are inherently dangerous and may require normal physical abilities. Students are therefore required to read about the inherently dangerous activities described below. In addition, students must read and demonstrate knowledge of their responsibilities while engaged in these activities.

Some students may have physical conditions that restrict their participation in certain laboratory activities. Respiratory ailments, certain allergies, and pregnancy may be among these conditions. Students exhibiting any of these

conditions, or any other condition that may be impacted adversely by participation in the activity, should consult a physician.

### **INHERENTLY DANGEROUS ACTIVITIES IN THE BIOLOGY LABORATORY**

Students may be exposed to chemicals (e.g., formaldehyde, organic solvents, acids, and other caustic chemicals), chemical fumes, laboratory equipment and supplies (e.g., scalpels, razor blades, glass slides, coverslips, and electrical equipment), toxic or irritating properties of living and dead animals, human organic matter (e.g., saliva and blood), and other materials necessary to laboratory activities of this or other laboratory classes. Other possible hazards include broken glass on the floor or counters, combustible materials (e.g., bunsen burner gas), and slippery spills.

### **RESPONSIBILITIES OF STUDENTS IN THE LABORATORY**

1. Students should be familiar with safety procedures and take appropriate precautions at all times to insure the safety of every student in the lab.
2. Students should follow instructions carefully, especially when hazardous conditions occur or hazardous materials are being used.
3. Students should locate the placement of safety equipment and supplies in the laboratory: safety shower, eye wash station, fire extinguisher, and first aid kit. Students should understand the use of this equipment. Also note the locations of exits.
4. Anyone injured in the lab, should inform the instructor immediately and take immediate action to reduce the risk of further injury.
5. Students should familiarize themselves with the fire procedures. Extinguish small fires, but leave the building immediately should a major fire occur. Notify the appropriate authorities -- don't assume someone else remembered to do it. Meet with other students and your instructor outside the building before leaving so that an accurate head count may be made.
6. Students should dress appropriately in the lab. Students may elect to supply their own gloves and protective aprons or laboratory coats. Some lab activities may require protective eyewear (provided for the activity by WCC).
7. Students should report all hazardous conditions to the instructor immediately.
8. Chemicals may be poisonous, corrosive, or flammable. No chemicals, even chemicals known to be safe, should be ingested, inhaled, or touched unless specifically directed to do so by your instructor.
9. All organisms, living or dead, should be treated with care and respect. Avoid direct handling when possible.
10. The safe use of specific equipment and tools (e.g., microscopes, slides, scalpels, and pipettes) will be demonstrated by the instructor during the laboratory sessions. Students should be sure they understand this usage.
11. Students should clean up any supplies used and should return materials where they belong as instructed. Any material spilled should be cleaned appropriately. Report and hazardous spills or breakages.
12. Broken glass and sharp metal waste should be placed only in those receptacles marked for such disposal -- do not put these materials in normal trash receptacles.

13. Some chemical wastes may not be dumped into laboratory sinks. In such circumstances an appropriate container will be provided for this waste in the lab.
14. Organic waste resulting from animal dissection activities should be disposed of in the appropriate receptacle, not the ordinary trash receptacles.
15. Human organic materials (e.g., saliva and blood) must be disposed of in such a way as to eliminate any possibility for contamination and the spread of disease. Appropriate handling and disposal procedures will be explained when human materials are involved in the laboratory exercise.
16. Clean up the laboratory area: remove and dispose of all trash; return supplies and equipment to appropriate locations; and disinfect bench area.
17. After completing laboratory activities and clean up, students should wash their hands in the restroom to avoid spreading contamination and hazardous chemicals.
18. The laboratory is a place for learning. Therefore, eating, drinking, and playing around is prohibited during the laboratory session. Students exhibiting unsafe or inappropriate behavior in the lab may be asked to leave and may be given an "F" grade for the course.

#### **ACCOMODATION FOR STUDENTS WITH DISABLIITIES**

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](mailto:lemke@hawaii.edu), or you may stop by Hale 'Akoakoa 213 for more information.

#### **TWO-WAY COMMUNICATION DEVICES:**

These devices are not allowed in the classroom. Please see to it that these devices are turned off while in class.

#### **UH POLICY ON EMAIL COMMUNICATION:**

The electronic communications policy adopted in December 2005 establishes the University of Hawai'i Internet service as an official medium for communication among students, faculty, and staff. Every member of the system has a hawaii.edu address, and the associated username and password provide access to essential Web announcements and email. You are hereby informed of the need to regularly log in to UH email and Web services for announcements and personal mail. Failing to do so will mean missing critical information from academic and program advisors, instructors, registration and business office staff, classmates, student organizations, and others.

#### **ACADEMIC GRIEVANCE STATEMENT:**

In instructional activities, the students are responsible for meeting all of the instructor's attendance and assignment requirements. Failure to do so may affect their final grade. In all college-related activities, including instruction, they must abide by the college's conduct codes and regulations, refraining from behavior that interferes with the rights and safety of others in the learning environment. Finally, if they decide to file a grievance, they are fully responsible for providing proof that they have been wronged.

**CLASS CANCELLATION:**

Lecture is cancelled if, without prior notice, the instructor is more than 15 minutes late for 75 minute classes or 10 minutes for 50 minute classes.

*This Syllabus is subject to change, when appropriate.*