

**BIOL 124L Environment and Ecology Laboratory
CRN 60071 - 01 Credit**

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EFFECTIVE DATE: Summer 2012

WINDWARD COMMUNITY COLLEGE MISSION STATEMENT

Windward Community College is committed to excellence in the liberal arts and career development; we support and challenge individuals to develop skills, fulfill their potential, enrich their lives, and become contributing, culturally aware members of our community.

CATALOG DESCRIPTION

Companion laboratory class to BIOL 124, Environment and Ecology. This class, providing hands-on experiences in the laboratory and in the field, enhances the student's understanding of basic environmental science and ecological concepts presented in BIOL 124. (3 hours lab). WCC DY

This session of BIOL 124 is a special session designed for the Pacific Center for Environmental Studies (PaCES) and Hawai'i Institute of Marine Biology Summer Program in Environmental Science for High School Students.

REQUIREMENTS SATISFIED BY THIS CLASS

AT WCC: Satisfies the Windward Community College Associate in Arts Degree and the University of Hawai'i baccalaureate diversification requirement for a Natural Sciences laboratory class (DY). Partially satisfies requirements for the Windward Community College Academic Subject Certificate in Bio-Resources and Technology, Bio-Resources Development and Management Track. May also be used in partial fulfillment of Marine Option Program certificate requirements.

AT UHM: Partially fulfills Natural Sciences area requirement for the UHM General Education Core as a science laboratory class (DY). It may also partially satisfy requirements in specific degree programs (e.g., Natural Resources and Environmental Management; Environmental Science focus in Liberal Studies)

PREREQUISITES

Prior or concurrent enrollment in BIOL 124 or consent of instructor.

STUDENT LEARNING OUTCOMES***The student learning outcomes are***

1. Use the scientific method of inquiry to investigate environmental phenomena.
2. Apply the concepts learned in BIOL 124 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. Demonstrate the use of some of the standard tools of the environmental scientist, such as microscopes, scales, spectrophotometers, various environmental meters, and basic statistical procedures.
6. Apply the standard analytical procedures needed to study the environment, such as soil analyses, water quality determinations, stream bioassessments, and quantitative resource inventories.
7. Conduct experiments that evaluate how environmental factors affect living organisms.

COURSE OBJECTIVES

The student will demonstrate the acquisition of basic laboratory and field research skills and knowledge relevant to environmental science and ecology. These skills and knowledge include the following areas:

- the scientific method of inquiry, providing examples of its use, and demonstrating this method through written reports and summaries of class laboratory and field activities;
- the collection, reduction, interpretation, and presentation of scientific data in the form of written laboratory/field reports and summaries;
- the use of some of the tools used to study the environment and the ecology of its organisms (e.g., dichotomous keys, water samplers, plankton nets, animal traps & nets, transects, quadrats, microscopes, scales, pH meters, nutrient test kits, oxygen meters, salinometers, refractometers, conductivity meters, turbidimeters, light meters, Secchi disks, anemometers, and other analytical tools);
- analysis and interpretation of the physical, chemical and biological environmental factors significant to the distribution and abundance of living things (e.g., temperature, precipitation, humidity, pH, water circulation/flow, salinity, water chemistry and properties, air quality, sediments, soil characteristics, nutrients, competitive interactions, predation, and symbiosis); and
- analysis and interpretation of how human activities impact the environment and its living things.

MODE OF INSTRUCTION

The previously described objectives will be achieved through the aid of the following learning activities:

- Multimedia presentations and demonstrations;
- Active participation in laboratory and field activities;
- Data collection using instruments and measurement tools;
- Computer-assisted data collection activities;
- Recording and interpreting results from laboratory and field activities;
- Written reports and/or summaries of laboratory activities.

The material presented in all modes of instruction will be of an introductory nature but sufficient in content to allow serious study by the interested student. Assigned readings will serve to provide background and supplemental information to provide a broad base for a basic study. Class lectures will build upon this base, helping to focus the student on some of the more important details.

EVALUATION OF CONTENT OBJECTIVE ACHIEVEMENT

LABORATORY/FIELD NOTEBOOK. The student will maintain a laboratory/field notebook to record all notes, observations, and information gathered before and during laboratory and field activities. This notebook must be brought to every laboratory and field period (5 point penalty for each failure to bring the notebook). The type of notebook and the kind of information required will be explained during the introductory lab session.

LABORATORY/FIELD REPORTS AND SUMMARIES. The student will complete written laboratory/field reports or summaries for most laboratory and field activities. The nature of the report or summary will depend upon the activity. But most of these will involve entering the appropriate information into the laboratory/field notebook. Each report or summary must be completed and turned in by the assigned due date and time. Each student is responsible for the student's own report and summary.

LABORATORY/FIELD ATTENDANCE AND PARTICIPATION. The student will attend and actively participate in all laboratory and field activities. A student missing more than two of these sessions will not receive a passing grade for the course.

GROUP PROJECT. The students will be assigned to a group that will define a group project. The project will involve several phases: identification of the problem to be studied, completion of a written project proposal, implementation of the approved project, completion of a written project report, and an oral presentation in the form of a symposium talk.

METHOD OF GRADING

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

Laboratory Notebook	100
Laboratory/Field Reports and Summaries	200
Laboratory/Field Attendance and Participation	100
Group Project	200
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TOTAL POSSIBLE POINTS	600

Letter grades will be assigned as follows:

- A 90% or above in total.
- B 80-89% of total points.
- C 70-79% of total points.
- D 60-69% of total points.
- F Below 60% of total points; also informal or incomplete official withdrawal from course.
- I Incomplete; given at **INSTRUCTORS 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 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 (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); never used as an alternative for an "F" grade;

The instructor may announce extra credit options at various times during the course. However, in order for the student to be eligible for any extra credit activity, the student must demonstrate responsibility in completing all regular course assignments. In addition the student must demonstrate a sustained interest in the content of the course by regularly attending and participating in class. Some extra credit assignments may require same-day class attendance in order for the student to be eligible to receive credit for these assignments. The instructor is not obligated to accept projects for extra credit.

Waiver of minimum level of achievement and course requirements 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.

STUDENT RESPONSIBILITIES

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

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

Students are expected to be prepared in advance when they arrive at 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.

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 'Ākoakoa 213 for more information.