Windward Community College

Outline of Course Objectives

BIOL 101 (CRN 63394) Biology & Society

Fall 2011
WF 12:30-1:45
'Imiloa 123

INSTRUCTOR: Michelle Smith
OFFICE: Imiloa 136
OFFICE HOURS: T 9-9:30, W 11:30-12:30, R 9-9:30, F 11:30-12:30
EMAIL: miliefsk@hawaii.edu
EFFECTIVE DATE: Fall 2011
CREDITS: 4 (3 hours lecture; 2 hours 45 minutes lab)
INSTRUCTOR’S WEB PAGE FOR POWERPOINT LECTURES:
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

Introduction to the characteristics of science, historical development of scientific concepts, and interaction of society with science illustrated by topics from biological science.

REQUIREMENTS COURSE SATISFIES:

AT WCC: Partially fulfills AA degree Natural Science requirements. This class counts as a biological science. This is an introductory biological science course designed for non-science majors seeking to fulfill part of their science core requirement. Its objective is to broaden an understanding of scientific activities.

AT UHM: Partially fulfills Natural Sciences area requirement for the UHM General Education Core and for the Colleges of Arts and Sciences. At UHM, this lecture class is included in Natural Sciences Group 1, Biological Sciences.

PREREQUISITES: Credit for MATH 25 or equivalent preparation. Eligibility for placement in ENG 100, or consent of instructor. High school biology, high school chemistry, and high school algebra, basic computer skills (internet searches, emailing, word processing).

LEARNING RESOURCES

REQUIRED TEXT:
STUDENT LEARNING OUTCOMES

Upon completion of this course the student should know:

- Distinguish science as a way of knowing from other epistemological systems.
- Discuss the historical development of the discipline of biology into what it is today, relating the contributions made by significant individuals and concepts of the past to modern biology.
- Explain the major integrating principles of biology.
- Explain the origin and organization of the diversity of life on Earth.
- Describe how living systems function, relating structure to function, at all levels within the hierarchy of life from molecules to the biosphere.
- Solve problems in inheritance and genetics.
- Present informed, rational and objective opinions on biologically-related issues important to human society.
- Use the scientific method of inquiry to investigate biological phenomena.
- Apply the concepts learned to an experimental and hands-on observational setting.
- Collect, reduce, and interpret biological data.
- Prepare written objective reports describing and interpreting experimental and observational results.
- Demonstrate the use of some of the standard tools and methods of the biological scientist, such as microscopes, scales, spectrophotometers, computers, dissection dichotomous keys, and other analytical tools.
- Identify the major systematic groups to which specimens of living things belong.

MODE OF INSTRUCTION

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

1. Assigned readings
2. Class lecture and videos
3. Web page resources

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. Class lectures will build upon this base, helping to focus the student to some of the more important details.

ASSESSMENT TASKS AND GRADING

ATTENDANCE. Attendance is mandatory. If a class is to be missed the Instructor must be notified and as to the reason why. Attendance is worth 100 points (10%) toward your final lecture grade. Each unexcused absence will result in a deduction of 10 points.

EXAMINATIONS. The student will take five non-cumulative examinations worth 180 points
each (90% of grade) to demonstrate understanding of information presented during lectures, videos and assigned readings. These examinations will be administered during a scheduled class session (see course syllabus). Exams are closed book, but the student is allowed a 1-sided 3x5” note card. Note cards that are double-sided will be thrown out and those larger than 3x5 will be cut down to size. NO RETESTS will be given. A student missing an examination because of an illness or legitimate emergency may take a make-up exam only during the FIRST class meeting to which the student returns. In such a circumstance, the student should make every reasonable attempt to contact the instructor before the exam is administered to the class (or as soon as possible). While make-up exams will cover the same content area as a missed exam, the exam format and specific questions may be different.

METHOD OF GRADING

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

Lecture Attendance: 100 points (10% of grade)
Lecture Examinations: each exam is worth 180 points (90% of grade)

EXTRA CREDIT ASSIGNMENTS

There are five assignments worth up to 5 percentage points for each assignment. Each assignment is to be turned in on the day of the exam. They can be turned in early, but late submissions will not be accepted. For instance, if you received an 85% on an exam and 5 points on the extra credit. You now have a 90%.

1. Attend a lecture at Waikiki Aquarium, Hanauma Bay Education Center, participate in a beach or algae cleanup… or
2. Review an article related to class content (e.g., Discover magazine, National Geographic, local paper…). Do not use internet sites such as Wikipedia, blogs or factoid sites.
3. Write a 1-2 page summary-reaction paper, typed, double spaced, size 12 font. Attach article to your paper (photocopy or cut it out).

ASSIGNMENT: Review a scientific article related to class content. The article may be from any scientifically reputable periodical or publication (e.g., Discover, Time, Newsweek). Legitimate online sites such as cnn.com or newsweek.com are acceptable, but not Bob’s marine biology website. Ask your instructor if you are unsure which types of publications are acceptable. Write a 1-2 page summary-reaction paper, typed, double spaced, size 12 font. Attach article to paper (photocopy it or cut it out).

Letter grades will be assigned as follows:

<table>
<thead>
<tr>
<th>Grading Scale:</th>
<th>Grade</th>
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<tbody>
<tr>
<td>Total Points</td>
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<tr>
<td>100-90%</td>
<td>A</td>
</tr>
<tr>
<td>89-80%</td>
<td>B</td>
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<tr>
<td>79-70%</td>
<td>C</td>
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<tr>
<td>69-60%</td>
<td>D</td>
</tr>
<tr>
<td>59- 0%</td>
<td>F</td>
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</tbody>
</table>

The student should use the above grading scale to evaluate his or her performance throughout the class. If the student misses an examination because of an illness or legitimate emergency, the student must contact the instructor within 48 hours to arrange a time to take a make-up exam. The instructor may request that the student present evidence of the illness or emergency that caused the student to miss the exam. If the student misses an exam for any other reason, the student may be prohibited from taking a make-up exam, thus failing to receive any points for the missed exam. While make-up exams will cover the same content area as a missed exam, the exam format and specific questions may be different. No retests will be given for any reason.
NOTE: The Lecture portion will be averaged with the Laboratory portion (50:50)

ACADEMIC DISHONESTY

Students involved in academic dishonesty will receive an "F" grade for the course.
Academic dishonesty includes cheating on exams and plagiarism. See page 16 of the 2006-2007 course catalog for a description of the University's policies concerning academic dishonesty

STUDENT RESPONSIBILITIES

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., lecture notes, textbook readings and handouts) assigned for that day's activities; and bringing required work materials (e.g., textbook, handouts, writing supplies, etc.).

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.

Please be considerate to other students by turning off any Cell Phone devices or Beepers during class. If yours does go off, be prepared to make amends to the entire class. The instructor will explain in more detail.

The student should understand that "INTRODUCTORY" DOES NOT MEAN "EASY". The student should not assume that the lack of prerequisites for this class ensures a low level of difficulty for this course. While the instructor assumes that students enrolled in BIOL 101 have little or no science backgrounds, the students should expect a level of difficulty comparable to other 100-level science classes. When difficult concepts and detailed information are presented, it is the student's responsibility to take the appropriate steps to learn and understand these concepts and information.

Science courses at UH generally require two to three hours of independent private study time for each hour in class (depends upon the student's science background). It is the student's responsibility to allocate the appropriate time needed for study in an environment conducive to quality study. The student must budget time efficiently and be realistic about all personal and professional commitments that consume time.

HOW TO SUCCEED IN THIS CLASS

Understanding biological science involves understanding many difficult concepts and vocabulary, not just knowing facts. The student should know that the details to these concepts are important. In addition, the student will be introduced to hundreds of new words and will need to understand and use these terms in a biological science context.

While the student will have lecture outlines, the student will not succeed in this class without taking careful lecture notes and reading the corresponding material in the textbook before and after the lecture. The student should carefully review these lecture notes as often as possible. In addition, the students' study activities should include: reviewing all of the internet resource materials provided, and making flashcards for each new vocabulary word presented. On one
side of the card, write the word. On the other side, write the appropriate biological science definition for the word. The student should use these card for self-testing as often as possible.

Students are recommended to establish **study groups** and study together. The students in these groups may test each other's knowledge and understanding of the information. They may also take turns teaching each other.

The student should **ask** the instructor to explain the things that the student does not understand.

Other reading materials may be handed out in class, placed on reserve in the library, or accessed from web pages.

**ACCOMODATION FOR STUDENTS WITH DISABILITIES**

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.

**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.
Windward Community College

Outline of Course Objectives

BIOL 101L (CRN 63394) Biology & Society Lab
Fall 2011
Friday 2-4:45

INSTRUCTOR: Michelle Smith
EMAIL: miliefsk@hawaii.edu
OFFICE: Imiloa 136
OFFICE HOURS: T 9-9:30, W 11:30-12:30, R 9-9:30, F 11:30-12:30
Lab Location: Imiloa 103
CREDITS: 4 (3 hours lecture; 2 hr 45 minutes lab)
INSTRUCTOR’S WEB PAGE FOR Labs: http://www.wcc.hawaii.edu/facstaff/miliefsky-m/

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DESCRIPTION

Companion laboratory course to BIOL 101. Concepts, techniques, and instrumentation used for studies in basic biological principles and its relationship to today’s society. Laboratory/field trip course.

RECOMMENDED PREPARATION:

Ability to use a computer.

RECOMMENDED BASIC SKILL LEVELS:

Reading level of text(s): college level.
Computer: internet searches, email, excel, word, powerpoint

Activities Required at Scheduled Times Other Than Lab Times

On occasion, student will have to complete laboratories as homework.

REQUIREMENTS COURSE SATISFIES:
Partially fulfills Windward Community College’s Liberal Arts degree Natural Science requirements as a physical science laboratory course.

**COURSE GOALS**

The primary goal of this laboratory/fieldtrip course is to provide the student with the hands-on experiences and skills that enhance the student’s understanding basic biology and it’s relationship to today’s society as presented in the lecture companion course. A further goal is for the student to achieve an understanding of application of the scientific method in understanding the study of the oceans.

**LEARNING RESOURCES**

- 3-ring (3inch) binder for handouts describing specific laboratory/field activities and assignments
- Field book
- Access to a computer

**STUDENT LEARNING OUTCOMES**

The student learning outcomes for the laboratory are:

1. To develop a practical understanding of biological principals.
2. Use the science methodology to define and solve problems independently and collaboratively.
3. Use a wide variety of laboratory and field techniques with accuracy, precision and safety.
4. Accurately interpret biological information.
5. Demonstrate proficient library, mathematical and computer skills in data gathering and analysis.
6. Apply scientific concepts to environmental and societal issues.
7. Apply their learning in an off-campus professional setting.

There will be no lab make-ups.

**COURSE OBJECTIVES**

The student will demonstrate the acquisition of basic laboratory and field research skills and knowledge relevant to biology and society. 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 activities;
- the collection, reduction, interpretation, and presentation of scientific data in the form of laboratory/field reports and summaries;
the use of some of the standard tools of the scientist, such as microscopes, computers, and other analytical tools;
integration of basic biological principles with the techniques learned by completing specific assignments.

MODE OF INSTRUCTION

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

- Active participation in laboratory and field activities;
- Laboratory lecture and demonstrations;
- Multimedia presentations;
- Internet-assisted activities and assignments;
- 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;
- Homework assignments

ASSESSMENT TASKS AND GRADING

Your grade will be based on your attendance, participation and performance on the laboratory assignments given throughout the semester. Each lab is a reflection on what is covered in lecture. Labs are due one week after activity date.

ATTENDANCE (10%): Attendance is mandatory. Be aware that since this is the only BIOL 101 lab it will be impossible to make up a lab with another instructor. Each unexcused absence will result in a deduction of 1%.

PARTICIPATION (10%):
This includes participating in all laboratory and field activities and working cooperatively within your group. You are also responsible for assisting in loading equipment, caring for equipment and cleaning up the lab or after a field activity. Each unexcused absence will result in a deduction of 1%.

ASSIGNMENTS (80%): Each lab or field activity will have a writing assignment that will need to be turned in the following class time. Each day it is late there will be a deduction or 5 points off the total grade of the assignment. The latest I will accept it will be the next lab time.

NOTE: The Laboratory portion will be averaged with the lecture portion (50:50)
Grading:
Attendance 10%
Participation 10%
Assignments 100%

A ------90% or above in total points
B ------80-89% of total points
C ------65-79% of total points
D ------55-64% of total points
F ------Below 55% of total points; also informal or incomplete official withdrawal from course.

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 and field 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; it also includes appropriate dress for field activities such as Waihee Tunnel or Bird observation studies (rain or shine).

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 also 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.

Other reading assignments may be found on reserve in the library or may be provided in class.

ADDITIONAL INFORMATION

• If you are a minor, please advise the instructor. Grades or any other personal information on the education performance of a minor will not be distributed to parents or legal guardians without the student’s consent/presence.

• If the instructor’s office hours do not work with your schedule, please e-mail or call to set up an appointment.
• This schedule and activities in this course are subject to change.

• "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."

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*This Syllabus is subject to change, when appropriate.*
LABORATORY AND FIELD ACTIVITIES

Students enrolled in BIOL 101L 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

Students in the science laboratory may be exposed to chemicals (e.g., formaldehyde, organic solvents, acids, and other caustic chemicals), chemical fumes, laboratory equipment and supplies (e.g., scapels, razor blades, glass slides, coverslips, and electrical equipment), toxic or irritating properties of living and dead animals 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.

During field activities students face risks such as accidents while in route to and from field destinations, falling out of boats, slipping on wet surfaces, stepping on sharp objects, large waves, strong currents, and dangerous marine life.

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 headcount 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 any 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. After completing laboratory activities and clean up, students should wash their hands in the restroom to avoid spreading contamination and hazardous chemicals.

17. 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.

**RESPONSIBILITIES OF STUDENTS IN THE FIELD**

1. Field excursions may involve carpooling to field destinations. Drivers are expected to have valid Hawaii driver's licenses, drive safely, and follow all traffic laws. Passengers should not disturb drivers.
2. When in the field, students should use the buddy system. Partners should have comparable physical skills and should keep track of each other at all times.

3. Students should wear clothing appropriate for the activity and should anticipate all possible weather conditions. Land/shoreline activities require loose-fitting clothing that protects the extremities from sunlight and abrasions (note that this clothing may get wet). Footwear should allow stable walking on rough and/or slippery surfaces (slippers are not acceptable footwear). A hat and sunglasses are also highly recommended. For water activities, a wet suit, or long pants and sleeves, worn over swim suits, are recommended. Gloves and protective footwear are essential. Students should apply sunscreen to all exposed skin areas.

4. When looking under rocks or ledges, students should be prepared for encounters with dangerous marine animals, such as eels, lionfish, and sea urchins. Unless specifically instructed to do so, students should not touch any marine organism.

5. Students should familiarize themselves with potential hazards in an area before beginning an activity. Watch for large waves and dangerous currents. If conditions should become dangerous after the activity starts (e.g., waves pick up or dangerous marine life enters the area), the student should leave the area immediately. Students should inform the instructor immediately when dangerous conditions arise. A student should never feel compelled to do an activity that seems hazardous. A student should refuse to carry out an activity that exceeds his or her physical capabilities.

6. Anyone injured in the field, should inform the instructor immediately and take immediate action to reduce the risk of further injury. Before an activity begins, students will be informed of the location of the first aid kit (which will be taken on every excursion).

7. No one should operate a power boat without specific training. While in power boats, students should remain seated at all times. No power boat should be used without proper safety gear (i.e., first aid kit, life vests, oars, anchor, flares and other essential gear).

8. Consumption of alcoholic beverages is prohibited during any class activity, including field activities.