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 studies to excellence.

CATALOG DESCRIPTION

An introduction into the history, development, biology and ecology, management, restoration, and future of Hawaiian fishponds. This course will study traditional Hawaiian fishponds, merging traditional knowledge with the principles of modern Western science. (3 hours lecture)

PREREQUISITES

No prerequisites. Although it would be useful if the student has taken a class in biology before enrolling in AQUA 201. The student is also recommended to take the companion laboratory course AQUA 201L concurrently with AQUA 201.

STUDENT LEARNING OUTCOMES

The student learning outcomes are

- Understanding and appreciating the importance of traditional Hawaiian fishponds to the Hawaiians.
- Why fishponds are important in the context of modern Western science.
- Understanding the interaction between human activities and the natural environment as it applies to fishponds.
- Understanding the challenges to and strategies for achieving sustainability (or economic viability) in the modern world based on the study of traditional Hawaiian fishponds.

REQUIREMENTS SATISFIED BY THIS CLASS

- Natural Science General Education Core for the Associates Degree in Liberal Arts as a Biological Science Lecture Class (Natural Sciences Group 1)
- Bio-Resources and Technology Academic Subject Certificate in Bio Resource Development and Management (Elective Set I: Technology, Utilization, and Management).
Hawaiian Studies Academic Subject Certificate Requirements at Windward Community College (as an elective).

COURSE CONTENT

Course Content and Topics/Skills or Competencies

- the philosophy and characteristics of science and the scientific method;
- the characteristics of living things, how they are classified and named;
- basic ecological principles, especially those applying to aquatic ecosystems and fishponds;
- the types of traditional Hawaiian fishponds, the history of their construction and use throughout the Hawaiian islands, how and where they were constructed, their operation and management (stocking, cultivation, harvesting and maintenance), their characteristics, and their biota;
- the oceanography of Hawaiian fishponds (water circulation, stratification, water chemistry and properties, sediment composition and characteristics, and biogeochemical cycles);
- the biology of important fishpond species, especially their modes of nutrition, life cycles, and interactions with other fishpond species as well as their physical environment;
- the basic principles of aquaculture, including pond dynamics, feeding regimes, cultivated species propagation and growth, disease management, production, harvesting and maintenance;
- the operation and function of the fishpond in the Ahupua'a;
- the integration between traditional practices and modern aquaculture methodologies;
- Hawaiian utilization of fishpond species;
- modern fishpond problems (disuse and natural degradation, agricultural and urban development, pollution, and invasive species);
- Hawaii fishpond restoration: approaches, problems and possible solutions, and examples of restoration projects; and
- the future of Hawaiian fishponds: whether they will become mere interesting archeological curiosities or they will represent models of sustainability for the future.

ASSESSMENT AND GRADING

TERM PROJECT/REPORT. The student will complete a term project on a topic relating to Hawaiian fishponds. The nature of the project will be explained in class. But this project may be any of the following (depending upon the instructor’s discretion): library research project (written report); development of appropriate demonstration/curriculum materials (may involve models, written reports, or some other form of media); group project (documented as a written or oral report); or a service learning project. (100 points total)

QUIZZES. The student will take a minimum of ten quizzes (15 points each; 150 points total). These quizzes will address the detailed content and major concepts presented in the lectures, lecture outlines, text readings, and study guide activities.

EXAMINATIONS. The student will take one midterm examination (100 points) and a cumulative final examination (150 points) to demonstrate understanding of information presented primarily during lectures.

The assignment of points will be according to the following protocol:
Letter grades will be assigned as follows:

A  90% or above in total points.
B  80-89.9% of total points.
C  65-79.9% of total points.
D  55-64.9% of total points.
F  Below 55% of total points or informal or incomplete official withdrawal from course.
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).
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 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.
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.

The points are summarized as:

<table>
<thead>
<tr>
<th>Term project/report</th>
<th>100 pt.</th>
<th>Description/Outline of Topic</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Project</td>
<td>20</td>
<td>Class Presentation</td>
<td>20</td>
</tr>
<tr>
<td>Mid-term Exam</td>
<td>100</td>
<td>Final Report</td>
<td>40</td>
</tr>
<tr>
<td>Quizzes</td>
<td>100</td>
<td></td>
<td></td>
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<tr>
<td>Attendance</td>
<td>100</td>
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<td></td>
</tr>
</tbody>
</table>

TOTAL  600 pt.

LEARNING RESOURCES

Required Textbook

Supplemental Readings


Titcomb, M., 1978. Native Use of Marine Invertebrates in Old Hawaii. *Pacific Science*, 32(4): 325-386. [This text is no longer in print; copies may be provided as a PDF file downloadable from the course website.]


Other materials may include handouts or Internet resources developed by the instructor. Handouts and selected readings from various texts will also be distributed in class or downloaded from the class site.

**STUDENT RESPONSIBILITIES**

The student is expected to attend and actively participate in all course lectures and activities, and complete all assignments, quizzes and examinations on time. Roll will be taken.

The student is expected to be prepared in advance before the class sessions. Being prepared includes the following: having read text materials (e.g., textbook readings and other resources) assigned for that day's activities and bringing required work materials (e.g., textbook, handouts, writing supplies, etc.) to the session.

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).

Students should expect a level of difficulty comparable to other 100-level science classes intended for non-science majors. 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 W.C.C. generally require two to three hours of independent private study time for each hour in class. However, because of the nature of the material presented in AQUA 201, more study time may be required (depends upon the student's science/biology 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 SUCEED 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. In some cases, words that are familiar in a context other than biology will be introduced in the context of biology. The student will need to understand and use these terms in a biological science context.

Students are expected to participate in all lecture activities and complete all course assignments on time. The student will not succeed in this class without taking careful lecture notes and reading the corresponding material in the textbook. As soon as possible (best if done on the same day), the student should copy over these lecture notes filling in gaps and missing information by referring to the textbook and other resources provided. The student should carefully review these rewritten lecture
notes as often as possible.

In addition to copying over lecture notes, study activities should include drawing labeled diagrams or graphs that illustrate important biological phenomena (e.g., the internal structure of the cell, the stages of cell division, or the anatomy of the heart). These diagrams need not be works of art, but should clearly illustrate significant information. Before an exam, it would be useful to redraw these labeled diagrams and graphs from memory.

The student should make flashcards for each new vocabulary word presented (refer to lecture outlines for a list of required terms). The student should use these cards for self-testing as often as possible. The student should also practice using the words to explain biological concepts.

The student should do all the recommended study guide activities and review all the Internet resource materials provided.

The textbook and other resources may include useful study questions. The student should write out answers to all of these questions as though they were required assignments. Students could exchange these answers and provide constructive feedback to each other.

The student should read the textbook materials corresponding to a particular lecture before and after that lecture.

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.

**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.