Proposal to Initiate, Modify or Delete a Course

1. Type of Action
   - A. Addition
   - Regular or experimenting or Other (click and type to specify)
   - B. Deletion
   - C. Modification: in credits in title in number or alpha in prerequisites or co-requisites Other from lect/lab to lecture only (click to specify)

2. New Alpha, Number and Title ZOOL 200 Marine Biology

3. Credits 3 credits

4. Old Alpha, Number and Title ZOOL 200 Marine Biology

5. Credits 3 credits

6. New Catalog Description
   Biological, physical, and chemical characteristics, flora and fauna, and interactions of components of marine ecosystems; survey of marine environments; utilization, exploitation, pollution, and conservation of marine resources; with special emphasis on the Hawaiian marine environment. (3 hrs lect).

7. Select box and type specific information in text box.
   - Prerequisites
   - Corequisites or
   - Recommended Preparation
   Recommended: Concurrent enrollment in ZOOL 200L.

8. Student Contact Hours Per Week
   - Lecture 3
   - Lecture/Lab
   - Lab
   - Other (click to specify)

9. Proposed Date of First Offering
   - Semester Fall Year 2008

10. This course is proposed for the Liberal Arts Program Program. can fulfill Nat Sci Biol: DB If Other, specify

11. This course Makes No Difference in the number of credits required for the program/core.

12. Equivalent or similar courses offered in the UH System:

<table>
<thead>
<tr>
<th>Campus</th>
<th>Alpha, Number, Title</th>
<th>Campus</th>
<th>Alpha, Number, Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>UH Manoa</td>
<td>ZOOL 200 Marine Biology</td>
<td>MauiCC</td>
<td>ZOOL 200 Marine Biology**</td>
</tr>
<tr>
<td>UH Hilo</td>
<td>BIOL/MARE 171</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HonoluluCC</td>
<td>ZOOL 200 Marine Biology*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KapiolaniCC</td>
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<td></td>
</tr>
<tr>
<td>LeewardCC</td>
<td>ZOOL 200 Marine Biology**</td>
<td></td>
<td></td>
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</tbody>
</table>

* This class is a three-credit lecture/lab (2 hrs. lect./3 hrs. lab.) classes with a lab component.
** These classes are four-credit lecture/lab (3 hrs. lect./3 hrs. lab.) classes with a lab component.

13. This course is (check one and click in appropriate textbox and provide details):
   - Already articulated with
   - Provide details of existing or desired articulation (date, college(s), purposes, pre-major, etc.) in this space:
   - Appropriate for Articulation with ZOOL 200 at KapCC; BIOL/MARE 171 at UHH; ZOOL 200 at UHM, HonCC, LeeCC & MauCC when taken with ZOOL 200L.
   - Provide details of existing or desired articulation (date, colleges(s), purposes, pre-major or major, etc.) in this space:
   - Not yet appropriate for Articulation.

14. Reason for Initiating, Modifying or Deleting Courses or Other Pertinent Comment:
   Splitting the lecture from the lab and increasing number of lecture contact hours by one while eliminating the lab contact hours from ZOOL 200.

Requested by:

Approved by:

Date

Dean of Instruction

Date

Provost/Chancellor

Date
Levels of Review of Course Proposal at Windward Community College

Course Alpha, Number, and Title: ZOOL 200 Marine Biology

Signatures

1. Department Area (more than one departmental instructor's signature required)

   Joseph E. Cotti
   Martin Kesler
   Roberta Fabrender

   1/10/08

2. Department Chairperson

   [Signature]

   Department Chairperson

   1/10/08

   Was this course discussed in a department meeting? ☑ Yes □ No

3. Division

   Margaret Coberly

   1/11/08

4. Curriculum Committee Review

   Approved ☑
   Disapproved □

   Reason:

   [Signature]

   Curriculum Committee Chairperson

   2/12/08
1. What change is proposed in the course? Provide specific information comparing both the "new" and "old" course.

The "old" course combined lecture and lab into a single three-credit course (2 hrs. lect., 3 hrs. lab). The "new" course will be a single three-credit, lecture-only (3 hrs.) class. In addition, a new and separate "ZOOL 200L" laboratory course will be proposed as the companion laboratory class to ZOOL 200. A consequence of this change is that ZOOL 200 will no longer simultaneously satisfy WCC AA degree diversification requirements for an biological science (DB) and a natural science laboratory (DY). The "new" course will only count as a biological science (DB) lecture class.

2. What is the rationale for the change?

The separation of natural science lecture/lab classes into separate lecture and laboratory classes will permit more flexible registration and enrollment of students into the lecture and lab components. This split is also consistent with how Marine Biology is taught at UHM, UHH, and KapCC.

The increase in lecture contact hours from two hours to three hours will allow adequate coverage of all necessary topics. Two hours per week of lecture was never enough time for adequate coverage. The allocation of three contact hours for the lecture component of Marine Biology is consistent with how the class is taught at LeeCC, MauCC, and UHH.

3. Is the change substantive enough to require a change in course identification? If so, explain thoroughly.

4. Is the course articulated with any 4-year program? No

If yes, give details of the agreement(s) and explain any impact the proposed modifications may have on articulation.

However, the course could be articulated with UHH's BIOL/MARE 171 which may be used to satisfy a requirement for a four-year degree in Marine Science at UHH.

5. Provide details of any additional staff, equipment, facilities, library/media material, faculty preparation and other financial considerations that would be required to implement this course modification. What has been done to provide for these additional costs? Who will teach the course? Is additional preparation needed?

No additional staff nor facilities required. Teaching this class would be part of the regular teaching load of David Krupp.

6. Will this course modification result in any alterations in the number of hours required to attain a certificate or degree? No If yes, provide details and justification for these alterations.

7. If the course is renumbered to 100 or above, does it meet the criteria for transfer level courses? (Go to next page for transfer course criteria.)
Course Alpha and Number ZOOL 200

Submitted by David A. Krupp

Date January 5, 2008

1. List the counterpart to this course on any 4-year UH campus. Describe the relationship between the course any related baccalaureate program area.

UHM: ZOOL 200 Marine Biology. At UHM, ZOOL 200 is a two-credit lecture (2 hrs. lect.) class that satisfies the DB diversification requirements. However, ZOOL 200 is considered a class for non-science majors and does not satisfy any major-specific four-year degree requirements except for Environmental Studies through the Interdisciplinary Studies program.

UHH: BIOL/MARE 171 Marine Biology. AT UHH, BIOL/MARE 171 is required for a Bachelor's degree in Marine Science.

2. Is this course taught or accepted by major accredited colleges or universities? Give one or two examples.

Hawaii Pacific University: MARS 2062 Marine Biology
California State University at Long Beach: BIO153 Introduction to Marine Biology

3. Please attach a complete course outline if you have not done so already. Your course outline should address all the items listed in the Guidelines for Course Outlines.
University of Hawaii Community Colleges
Proposal to Initiate, Modify or Delete a Course
Articulation with 4-year UH Campus Form

COURSE ARTICULATION FORM (GENERAL EDUCATION CORE)

ORIGINATING CAMPUS: Windward Community College DATE SUBMITTED: January 5, 2008

COURSE ALPHA & NUMBER: ZOOL 200 SEMESTER CREDITS: 3

COURSE TITLE: Marine Biology

DATE OF OUTLINE: January 5, 2008 Year 2008

(** Representative outline, no multiple syllabi, please.)

1. Articulation committee to review this course:

   Standing Committees
   Written Communication □
   Mathematical & Logical Thinking □
   World Civilizations □
   Languages □
   Arts & Humanities □
   Natural Science X
   Social Science □

2. The information in this item is required by the reviewing committee so that it has a starting point for reviewing the course. It is the responsibility of the submitting campus to do the necessary research to provide this information.

In the opinion of the originating campus, this course is equivalent to the following and/or meets the criteria for the indicated core categories. Every core category space, except your own campus, must be filled in (can include ‘none’). An equivalent course, if known, may be helpful to committee members but is not required.

<table>
<thead>
<tr>
<th>Receiving Campus</th>
<th>Equivalent Course (Alpha and Number)</th>
<th>Core Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>UH Hilo</td>
<td>BIOL/MARE 171</td>
<td>Nat Sci (Biology)</td>
</tr>
<tr>
<td>UH Manoa</td>
<td>ZOOL 200</td>
<td>DB</td>
</tr>
<tr>
<td>UH West Oahu</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hawaii CC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Honolulu CC</td>
<td>ZOOL 200*</td>
<td>DB</td>
</tr>
<tr>
<td>Kapiolani CC</td>
<td>ZOOL 200</td>
<td>DB</td>
</tr>
<tr>
<td>Kauai CC</td>
<td></td>
<td>NS1</td>
</tr>
<tr>
<td>Leeward CC</td>
<td>ZOOL 200*</td>
<td>DB</td>
</tr>
<tr>
<td>Maui CC</td>
<td>ZOOL 200*</td>
<td>Nat Sci</td>
</tr>
<tr>
<td>Windward CC</td>
<td></td>
<td>DB</td>
</tr>
</tbody>
</table>

*Equivalent if WCC’s ZOOL 200 is taken with ZOOL 200L.

3. If submitted electronically, I understand that this outline will be posted to a publicly accessible web site to enable open access for reviewing committees and campuses. The outline will be taken off the site upon completion of the review.

Typed Name or Signature

Note: If possible submit coversheet and course outline electronically as e-mail attachments (preferably in ‘pdf’ format). If submitting in printed form, 20 copies of coversheet and course outline are required for distribution for appropriate review.

Note: UCA Clearinghouse
John Muth, Office of the Chancellor for Community Colleges, is acting as staff to the University Council on Articulation and is responsible for tracking all courses submitted for articulation.

Revised 1/29/2001
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

Biological, physical, and chemical characteristics, flora and fauna, and interactions of components of marine ecosystems; survey of marine environments; utilization, exploitation, pollution, and conservation of marine resources; with special emphasis on the Hawaiian marine environment. (3 hrs lecture) WCC DB

PREREQUISITES

No prerequisites. The student is recommended to take the companion laboratory course ZOOL 200L concurrently with ZOOL 200.

STUDENT LEARNING OUTCOMES

The student learning outcomes are

1. Explain the process and philosophical basis of scientific inquiry.
2. Distinguish between living things and inanimate objects.
3. Demonstrate an understanding of the physical and chemical characteristics of the marine environment, especially those of the Hawaiian marine environment, and how they impact marine life.
4. Communicate knowledge of the diversity of marine organisms, especially Hawaiian species.
5. Exhibit an appreciation of the interaction between structure and function of marine life and how marine organisms are taxonomically related.
6. Illustrate and provide examples of the ecological role of and relationships between marine organisms.
7. Describe the major life zones of the ocean and the adaptations of living things relevant to being a successful species in these zones.
8. Recognize and suggest solutions to the negative impacts of human activities on the marine environment.
9. Research and write, using the language of the field, about a marine biology topic.
REQUIREMENTS SATISFIED BY THIS CLASS

- This class may satisfy the Windward Community College Associate in Arts Degree diversification requirement for a Natural Sciences biological science class (DB).
- This class may partially satisfy requirements for the Windward Community College Academic Subject Certificate in Bio-Resources and Technology, Bio-Resources Development and Management Track (Elective Set II: Environment and Ecology).
- This class may partially satisfy requirements for the University of Hawai‘i Marine Option Program Certificate as a marine survey course.

COURSE CONTENT

Course Content and Topics

- Science as a Way of Knowing
- Overview of the History of Marine Biology
- The Characteristics of Life: The Chemical Basis of Life
- The Characteristics of Life: Complexity and Organization
- The Characteristics of Life: The Cell Theory and Types of Cells
- The Characteristics of Life: Reproduction, Inheritance, Development
- The Characteristics of Life: Interaction with the Environment and Evolution
- Geography and Geology of Ocean Basins
- Geologic History of the Hawaiian Islands
- The Chemical and Physical Environment of the Ocean
- Overview of the Diversity and Classification of Living Things
- Marine Prokaryotes, Protists and Fungi
- Marine Plants
- Marine Invertebrates
- Marine Fishes
- Marine Reptiles and Birds
- Marine Mammals
- The Principles of Marine Ecology: Population Growth
- The Principles of Marine Ecology: Species-Species Interactions
- The Principles of Marine Ecology: Ecological Succession
- The Littoral Zone
- Estuaries
- Life on the Continental Shelf
- Coral Reefs
- The Deep Ocean Floor
- Living in the Water Column: Planktonic Life
- Living in the Water Column: Nekton
- Human Interaction in the Sea: Resource Utilization and Management
- Human Interaction in the Sea: Pollution
Skills or Competencies

• Using the language and terms appropriate to the natural sciences, citing examples when appropriate, the student will describe and integrate basic biological principles and define basic biological terms presented in lecture and required texts, citing specific examples when asked for. These principles include the following areas:
  o The philosophy and characteristics of science and the scientific method.
  o The difference between hypotheses, theories and laws in science.
  o The definition of life and how living things differ from inanimate objects.
  o How living things are classified and named and the characteristics used to classify living things.
  o The chemical architecture of living things and basic biochemistry (photosynthesis, respiration, fermentation) of organisms.
  o The parts, their structures and functions, of cells; how prokaryotic cells differ from eukaryotic cells; and how plant and animal cells differ.
  o Patterns of asexual and sexual reproduction and development.
  o In the most general way, how genetic information is passed from parents to offspring.
  o Evolution as the unifying principle of biological science; and the evidence supporting evolution and natural selection.
  o The characteristics, classification and basic biology of marine prokaryotes, protists, fungi, plants, invertebrates, and vertebrates

• Using the language and terms appropriate to the natural sciences, citing examples when appropriate, the student will describe and integrate basic information related to the marine environment and the organisms that inhabit it. This information includes the following:
  o The general characteristics of the ocean as a habitat (e.g., the origin & structure of ocean basins, chemical & physical properties of seawater, and the characteristics of waves, tides & currents) and how it differs from other environments (land, freshwater, & air); the classification of the marine environment.
  o The origin of the Hawaiian Islands and the special characteristics of Hawai‘i in relationship to its marine flora and fauna.
  o The general adaptations of living things to life in the sea.
  o Population growth of marine species, including the factors that may limit this growth.
  o Interactions among marine species (competition, predation, symbioses, niche concept, keystone species, etc.).
  o The productivity of the ocean and the trophic relationships (e.g., nutrient recycling, energy flow, food chains & webs) of marine ecosystems.
  o The characteristics of the benthic environments (e.g., intertidal, shallow subtidal, abyssal benthos, hydrothermal vents & coral reefs), the organisms, and their respective adaptations, that inhabit these environments.
  o The characteristics, adaptations and ecology of marine planktonic forms.
  o The characteristics, adaptations and ecology of marine nekton forms (e.g., fish, whales, pinnipeds, marine birds and reptiles).
  o The potential of ocean resources and the influence of human activities involving the ocean (e.g., utilization and exploitation, ocean pollution problems).
  o Identification of common species of Hawaiian marine flora and fauna.

• Using the language of the field, and following the format appropriate for a scientific research review paper, research and write on an approved marine biology topic.
COURSE TASKS, ASSESSMENT AND GRADING

MARINE BIOLOGY RESEARCH PAPER. The student will complete a formal library research report on an approved marine biology topic in the form of a typical scientific review paper. Development of this report may involve submissions of drafts and personal interviews to discuss the development of these drafts towards the production of a final draft. Specific details on the format of this report will be presented in class (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:

<table>
<thead>
<tr>
<th>Research Paper</th>
<th>100 points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>150 points</td>
</tr>
<tr>
<td>Midterm Examination</td>
<td>100 points</td>
</tr>
<tr>
<td>Final Examination</td>
<td>150 points</td>
</tr>
<tr>
<td>TOTAL</td>
<td>500 points</td>
</tr>
</tbody>
</table>

Letter grades will be assigned as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90% or above in total points.</td>
</tr>
<tr>
<td>B</td>
<td>80-89.9% of total points.</td>
</tr>
<tr>
<td>C</td>
<td>65-79.9% of total points.</td>
</tr>
<tr>
<td>D</td>
<td>55-64.9% of total points.</td>
</tr>
<tr>
<td>F</td>
<td>Below 55% of total points or informal or incomplete official withdrawal from course.</td>
</tr>
<tr>
<td>I</td>
<td>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 &quot;I&quot; to the contingency grade identified by the instructor (see catalog).</td>
</tr>
<tr>
<td>CR</td>
<td>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).</td>
</tr>
<tr>
<td>NC</td>
<td>Below 65% of total points; this grade only available under the CR/NC option (see above and see catalog).</td>
</tr>
<tr>
<td>N</td>
<td>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 &quot;F&quot; grade.</td>
</tr>
<tr>
<td>W</td>
<td>Official withdrawal from the course after the third week and prior to the end of the 10th week of classes (see catalog).</td>
</tr>
</tbody>
</table>
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**

McGraw-Hill.

Handouts and selected readings from various texts will also be distributed in class or through the
Internet.

**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.

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 200-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 ZOOL 200,
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 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. 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 of the recommended study guide activities and review all of 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.