## UNIVERSITY OF HAWAII COMMUNITY COLLEGES
### PROPOSAL TO INITIATE, MODIFY OR DELETE A COURSE

1. **TYPE OF ACTION**
   - A. Addition
     - Regular [x] Experimental [ ] Other [ ]
   - B. Deletion [ ]
   - C. Modification [ ] in credits [ ] in title [ ] in number or alpha [ ] in prerequisites [ ] Other [ ] (specify)

2. **NEW ALPHA, NUMBER AND TITLE**
   - BIOLOGY 200 Coral Reefs

3. **CREDITS**
   - 3

4. **OLD ALPHA, NUMBER AND TITLE**

5. **CREDITS**

6. **NEW CATALOG DESCRIPTION**
   - see attached course outline

7. **PREREQUISITES**
   - none

8. **STUDENT CONTACT HOURS PER WEEK**
   - Lecture 3, Lecture/Lab [ ] Lab [ ] Other (specify) [ ]

9. **PROPOSED DATE OF FIRST OFFERING**
   - Fall 1998

10. **THIS COURSE**
    - [ ] IS REQUIRED [x] IS AN ELECTIVE FOR THE WCC Marine Option PROGRAM/CORE
    - (Please specify) (Circle appropr.)
    - [x] CAN FULFILL Natural Science Core NS1 (Biology) [ ] REQUIREMENT
    - (Please specify)

11. **THIS COURSE**
    - [ ] INCREASES [ ] DECREASES [x] MAKES NO CHANGE IN NUMBER OF CREDITS REQUIRED FOR THE PROGRAM/CORE

12. **SIMILAR COURSES OFFERED ELSE WHERE:**
    - none
    - College(s): [ ]
    - Alpha, Number, Title: [ ]

13. **THIS COURSE IS**
    - [ ] ALREADY ARTICULATED [x] APPROPRIATE FOR ARTICULATION [ ] NOT YET APPROPRIATE FOR
    - with [ ] with Nat Sci Core (Biol) ARTICULATION
    - (Provide details of existing or desired articulation (date, college(s), purposes, pre-major or major, etc.)

    Should be acceptable as biological science lecture class in the Natural Science core requirements for all campuses.

14. **REASON FOR INITIATING, MODIFYING OR DELETING COURSE OR OTHER PERTINENT COMMENT:**
    - Responding to increased global interest in coral reefs. This class will offer unique content of interest to students of diverse background:

---

**REQUESTED BY:**

**APPROVED BY:**

- Department Chairperson
- Curriculum Committee
- Faculty Senate
- Dean of Instruction
- Provost

**Change recorded by Catalog Preparer**

**CCC# #6100**

(Amended for WCC use Sept. 1991)
<table>
<thead>
<tr>
<th>Signatures</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Subject Area (one or more instructors in the area)</td>
<td>12-8-97</td>
</tr>
<tr>
<td>[Signature 1]</td>
<td>12-8-97</td>
</tr>
<tr>
<td>[Signature 2]</td>
<td></td>
</tr>
</tbody>
</table>

2. Department | 12-8-97 |
| [Signature 1] | 12-8-97 |
| Department Chairperson | |

3. Division | 1-20-98 |
| [Signature 1] | 1-20-98 |
| Assistant Dean of Instruction | |

4. Curriculum Committee Review | |
| Approved | X |
| Disapproved | |
| Reason: | |

[Signature 1] | 1/28/98 |
| Curriculum Committee Chairperson | |
WCC FORM FOR NEW COURSE PROPOSALS

Course BIOLOGY 200 Submitted by Dave Krupp Date 12/4/97

1. How is this course related to the educational needs and goals of the College/Department/Community as reflected in the EDP?
   1. As a 200-level class, this class will enhance the Liberal Arts course offerings.
   2. It also strengthens the natural sciences as an expansion of courses emphasizing the Hawaiian environment.
   3. It will also help achieve a departmental goal to establish a curriculum in remote sensing.

2. Provide details of any additional staff, equipment, facilities, library/media material, faculty preparation and other financial support that would be required to implement this course. (Include an estimate of the actual cost of supplies and equipment.) What has been done to provide for these additional costs for the proposed date of offering? Who will teach the course?
This class will not require any additional costs. Dave Krupp will teach this class, alternating it with other classes that he teaches as part of his normal teaching load.

3. Is a similar course taught elsewhere in the UH system? no
   If yes, provide details of how this course differs from existing similar courses.

4. Is this course experimental and/or unique to Windward Community College? yes
   If yes, provide rationale and details of its impact on the College curriculum.
   This class will increase the diversity of biological science offerings available for nonscience majors. It will also complement our campus' emphasis on the Hawaiian environment as well as the marine environment.

5. Is a similar course taught on the upper division level by a 4-year UH college? no
   If yes, explain why this course is appropriate at the lower division or how it differs from its upper division counterpart.

6. Please attach a complete course outline. Your course outline should address all the items listed in the Guidelines for Course Outlines.

7. If this course is numbered 100 or above or appropriate for transfer to a 4-year college, complete and attach WCC Form for Transfer Courses (blue).
   (See attached criteria for transfer courses.)
WCC FORM FOR TRANSFER COURSES
(To be completed for articulation with any 4-year UH campus)

Course: BIOLOGY 200  Submitted by: Dave Krupp  Date: 12/4/97

1. List the counterpart to this course on any 4-year UH campus. Describe the relationship between the course and any related baccalaureate program area. This is a unique class not taught any 4-year UH campus. It may be appropriate for satisfying Marine Option Program requirements at UH campuses with Marine Option Programs.

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

   none

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.

WCC 9/91
WINDWARD COMMUNITY COLLEGE

OUTLINE OF COURSE OBJECTIVES

COURSE NAME: Coral Reefs
COURSE ALPHA: BIOL 200
CREDIT HOURS: 03

CATALOG DESCRIPTION:

Introduction to the biology, ecology and geology of stony corals and the reef structures they build. Topics include, but not limited to, the following: photobiology, biochemistry, physiology, reproduction, ecology, biogeography and evolution of stony corals; contributions made by other members of the coral reef community, such as algae, invertebrates, fish, sea turtles, sea birds, and marine mammals; reef formation and geomorphology; corals as resources for human utilization and the impacts of human activities upon reefs throughout the world. Emphasis will be on Hawaii's coral reefs, but comparisons will be made among reefs from other areas.

REQUIREMENTS COURSE SATISFIES:

Partially fulfills WCC's AA degree Natural Science requirements. This class counts as a biological science lecture course.

PREREQUISITES: None

RECOMMENDED SPECIAL PREPARATION:

High school biology, high school chemistry, and high school algebra. Students are also recommended to take the corresponding laboratory course (BIOL 200L) concurrently.

RECOMMENDED BASIC SKILL LEVELS:

Reading Level of Text (s): College Level

ACTIVITIES REQUIRED AT SCHEDULED TIMES OTHER THAN CLASS TIME:

none

INSTRUCTOR: Dr. David Krupp
OFFICE: Hale 'Imiloa 104
TELEPHONE: 235-7316 (WCC office), 236-7437 (HIMB office)
EFFECTIVE DATE: Fall 1998
COURSE GOALS

Upon completion of this course the student should understand and appreciate the special characteristics of coral reef environments, especially Hawaiian reefs. These special characteristics may be articulated in the following concepts: coral reefs are oases of high biological productivity and diversity in the midst of oceanic deserts; the tiny architects of these reefs, the coral polyps, in concert with coralline algae and other organisms, slowly create the largest structures built by living things; while coral reef biologists debate the fragility and robustness of coral reefs, many biologists now recognize that reefs around the world are threatened by the chronic effects of ever-increasing human impacts.

COURSE OBJECTIVES

Upon completion of this course a student should be able to:

1) describe and discuss the major principles and characteristics of the biological sciences, as well as those of the natural sciences in general (e.g., the philosophy and characteristics of science and the scientific method, the difference between hypotheses, theories and laws in science, the scope of biology as a natural science discipline, the definition of life and how living things differ from inanimate objects, how living things are classified and named, the characteristics used to classify living things);

2) demonstrate an understanding of the biology of scleractinian corals (e.g., systematics & classification, soft tissue morphology and cytology, skeletal morphology, endosymbiosis with zooxanthellae, modes of feeding, reproduction, environmental factors that influence growth and distribution, and evolution) with an emphasis on Hawaiian corals;

3) describe the ecological relationships (e.g., food webs, predator-prey relationships, competitors for common resources, symbiotic associations, zonation) among the living components of coral reef communities and their interactions with the physical environment (e.g., energy flow and biogeochemical cycles);

4) describe the balance between framework building, erosion and cementation (including the organisms and physical processes involved) that contributes to reef formation and geomorphology;

5) describe the types of reefs and the processes that shape them (e.g., subsidence and sea level change), including the formation of reefs in the Hawaiian Island chain;

6) discuss the resources that coral reefs provide (e.g., food, building materials, cultural artifacts, medical/research technologies, educational resources, recreation and aesthetic well-being), especially to Pacific island nations and states;

7) discuss the impacts of human activities on coral reefs and the significance of these impacts to Pacific island nations and states (e.g., overfishing, species introductions, sewage, pesticides, other chemicals, industrial waste, nonpoint sources, global warming and ozone depletion).

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

EVALUATION OF OBJECTIVE ACHIEVEMENT

EXAMINATIONS. The student will take one midterm examination (100 points) and one final examination (100 points) to demonstrate understanding of information presented during lectures and assigned readings.

QUIZZES. The student will take a total of 12 quizzes (10 points each) administered ONLY during the first 10 minutes of class meetings (usually on Fridays). Of these 12 quizzes, only the 10 best scores will be included in the student's point total (100 points total). Because the student will drop the two lowest quiz scores, no make-up quizzes for quizzes missed due to absences will be administered.

SHORT ESSAY ASSIGNMENTS. During the course of the semester, students will be assigned 5 essay questions (20 points each). Each essay response should be typed (normal fonts and double-spaced) grammatically correct and exhibit a logical organization. Its content should be objective and supported by factual information. While each essay will be evaluated primarily on content, rather than on quantity, I expect that each essay will require two to four typed (10-12 pt. font) double-spaced pages.

METHOD OF GRADING

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

<table>
<thead>
<tr>
<th></th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture Examinations</td>
<td>200</td>
</tr>
<tr>
<td>Quizzes</td>
<td>100</td>
</tr>
<tr>
<td>Essays</td>
<td>100</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>400</td>
</tr>
</tbody>
</table>

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 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.
W --- Official withdrawal from the course after the third week and prior to the end of the 10th week of classes (see catalog).
NO RETESTS will be given. A student missing an exam 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.

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 course assignments and sustained interest in the content of the course. THE INSTRUCTOR IS NOT OBLIGATED TO ACCEPT PROJECTS FOR EXTRA CREDIT.

Waiver of minimum level of achievement will 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 are expected to attend all lectures, participate in all 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; 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.

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 200 have little or no science backgrounds, the students should expect a level of difficulty comparable to other 200-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 W.C.C. 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. You should know that the details to these concepts are important. In addition, you will be introduced to hundreds of new words. In some cases, words that are familiar to you in a context other than biology will be introduced to you in the context of biology. You will need to understand and use these terms in a biological science context.
While you will be given lecture outlines that include study guides (or they may be sold through the college bookstore), you will not succeed in this class unless you take your own careful lecture notes and read the corresponding material in the textbook. The lecture outlines are not to be used in place of your own note taking. As soon as possible (best if you do it the same day), copy over your lecture notes filling in gaps and missing information by referring to the lecture outlines and textbook. You should carefully review these rewritten lecture notes as often as possible. In addition to reviewing these notes before a quiz or exam, it would be useful to try to rewrite these notes from memory.

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

Make flashcards for each new vocabulary word you learn (refer to study guides provided for a list of terms). On one side write the word. On the other side write the appropriate biological science definition for the word. Test your ability to provide the right definition as often as possible. Practise using the word to explain biological concepts.

Write out answers to all of the study guide questions as though you were required to turn them in. Allow someone else to read your answers and give you feedback. Read someone else’s answers and provide constructive feedback.

Review the demonstration materials for the laboratory several times during the week that follows the corresponding lab activity. Write down important information and draw pictures from these materials.

Read the textbook materials corresponding to a particular lecture (or lab activity) before and after that lecture. Review this material before quizzes and exams.

TEXTBOOK AND OTHER ASSIGNED INSTRUCTIONAL MATERIALS


OTHER INFORMATION

Important Dates:

- Last day to add or drop a class
- Last day of erase period
- Last day for official withdrawal

Instructor’s Office Hours (or by appointment):
<table>
<thead>
<tr>
<th>WEEK</th>
<th>LECTURE TOPIC</th>
</tr>
</thead>
</table>
| 1    | Course Introduction  
         Science as a Way of Knowing |
| 2    | Introduction to Corals and their Relatives |
| 3    | Coral Anatomy and Systematics |
| 4    | Hawaiian Corals |
| 5    | Coral Nutrition |
| 6    | Coral Reproduction and Development |
| 7    | Coral Growth and Environmental Factors Influencing Coral Growth |
| 8    | Types of Reefs |
| 9    | Reef Formation |
| 10   | Reef Geomorphology and Zonation |
| 11   | Ecology of Coral Reefs: Energy Flow and Trophic Levels |
| 12   | Ecology of Coral Reefs: Species Interactions |
| 13   | Biogeography  
         Comparing Reefs to other Environments |
| 14   | Coral Paleontology and Evolution |
| 15   | Human Impacts on Coral Reefs: Local Effects |
| 16   | Human Impacts on Coral Reefs: Global Impacts |