

**OCN 199 Research Experiences in Marine Science**  
03 Credits

**INSTRUCTOR:** David A. Krupp  
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**EFFECTIVE DATE:** Summer 2017

**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.*

**COURSE DESCRIPTION**

The course would be located at teaching facilities at Moku o Lo'e (Coconut Island) in Kāne'ohe Bay and utilize the expertise of HIMB researchers whose specialties demonstrate how human impacts and global change affect coral reef ecosystems. Course content will vary each session, but may broadly include topics in physiology, ecology, and ecosystem processes of coral reefs, the sensory processes and behavior of marine fishes and mammals, or the evolutionary and ecological genetics of marine organisms. Topical content will be taught over a two week period, with appropriate emphasis placed on marine conservation, stewardship and sustainability. Content knowledge will be assessed by quizzes using iClicker. We will also seek to relate scientific content to the cultural and societal significance of Kāne'ohe Bay's ecosystems by placing modern science within a Hawaiian cultural context. At the completion of the first two weeks of instruction, student teams will conceptualize and execute a 'mini' research plan and prepare their project as a formal written report over three weeks, and finally provide an oral presentation of their work.

**INSTRUCTIONAL METHODS**

Over the first two weeks of the course, class time will be split between short lectures, researcher guest lectures, quizzes, fieldtrips, and numerous investigative sessions both in the field and in the lab. Science content will vary year to year based on participating faculty and current research being done at the institute. It is vital that students regularly attend class and do the reading assignments before coming to class. Investigative field and lab "hands-on" sessions will be executed in small groups, closely guided and mentored by participating program faculty and staff. At the conclusion of each session, teams will report out their results and discuss with the entire class. The remaining three weeks of the program will be devoted to students developing novel team research questions related to the marine science topics covered during the first two weeks, followed by design, execution, analysis, reporting and oral presentation of results at an organized course 'symposium'. Research projects will be closely guided by course faculty and staff.

**STUDENT LEARNING OUTCOMES**

Upon successful completion of this course, students will be able to:

- describe the major elements of a typical Hawai'i shallow water coral reef ecosystem.
- analyze different environmental challenges to Hawai'i's coastal habitats and some of the current research that seeks to address these issues.
- describe basic techniques currently used in (marine) science investigations.
- investigate a question, propose a hypothesis, design an experiment, collect data, and analyze and interpret results using the scientific method
- communicate scientific research in both written and oral formats appropriate in professional science.

## TASKS, SKILLS AND COMPETENCIES

In addition to the above learning outcomes, the experiential nature of this course, in which students will design and execute a novel research question, will result in students gaining additional skills and competencies of relevance to the practice of science and scientific investigation. Students will gain familiarity with researching published literature through the libraries and online databases, and critically analyze their results using statistical analyses and computer software. Through executing and presenting their original research projects, they will gain skills in collaborative teamwork, leadership and public speaking. The content of the program will have imparted new knowledge of some of the environmental challenges to Hawai'i coastal habitats and some of the current scientific research that seeks to address these issues. Finally, our sessions dedicated to college and careers will familiarize students with educational and future professional opportunities related to marine science.

## GRADING

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

|                         |            |               |
|-------------------------|------------|---------------|
| In class quizzes        | 25         | points        |
| Lab and field exercises | 25         | points        |
| Group project           | 25         | points        |
| Final Presentation      | 15         | points        |
| <u>Final paper</u>      | 10         | points        |
| <b>TOTAL</b>            | <b>100</b> | <b>points</b> |

Letter grades will assigned as follows:

|          |   |
|----------|---|
| <b>A</b> | 90% or above in total points.   |
| <b>B</b> | 80-89.9% of total points.   |
| <b>C</b> | 70-79.9% of total points.   |
| <b>D</b> | 60-69.9% of total points.   |
| <b>F</b> | Below 60% of total points or informal or incomplete official withdrawal from course or unacceptable attendance (<85% of scheduled days and activities). |

|           |   |
|-----------|---|
| <b>I</b>  | Incomplete; given at the <b>INSTRUCTOR'S OPTION</b> when student is unable to complete a small part of the course because of circumstances beyond his or her control. It is the <b>STUDENT'S</b> 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). |
|           |   |
| <b>CR</b> | 70% or above in total points; the student must indicate the intent to take the course as <b>CR/NC</b> in writing by the end of the 10th week of classes (see catalog).  |
| <b>NC</b> | Below 70% of total points; this grade only available under the <b>CR/NC</b> option (see above and see catalog).   |
|           |   |
| <b>N</b>  | <b>NOT GIVEN BY THIS INSTRUCTOR EXCEPT UNDER EXTREMELY RARE CIRCUMSTANCES</b> (e.g., documented serious illness or emergency that prevents the student from officially withdrawing from the course); not used as an alternative for an "F" grade.   |
|           |   |
| <b>W</b>  | Official withdrawal from the course (see catalog).  |

Waiver of minimum requirements for specific grades may be given only in unique situations at the instructor's discretion.