



HAWAII PACIFIC UNIVERSITY

"Holomua Me Ka Oiaio"

## Hawaii Pacific University Graduate Course Proposal Form

(Fall 2005 version)

1. Course Alpha (4-char. max.): NSCI Course Number (4-char. max.): 6900

2. Course Title for catalog: Master's Research

3. Academic Division/Department: College of Natural Sciences, Marine Science Graduate Program

4. Starting Semester/Year: Spring 2007

5. Credit(s): 1-3 Master's students may take the course over summer or at other times for more limited levels of commitment than 3 credits. Graduate students require 9 credits of research and thesis for the Master's degree but may take more than 6 research credits to be fulltime in any particular semester when the research/work load requires it.

6. Course Description (which will appear in the Academic Catalog; limit to 50 words).

MSMS students undertake a review of the literature or field research towards their dissertation, under the supervision of a research mentor. This course is designed to contribute to outlining / refining their initial research proposal or to the collection / analysis of data for their thesis. Variable credits are awarded.

*Proposed syllabus with course objectives, requirements, text, and evaluation methods are attached.*

7. Prerequisites(s): Enrollment in Marine Science Graduate Program and permission of instructor

8. Course Frequency:  Every semester  Every year  Experimental

Other: And is required by student as they progress through the program

Course Structure:  Lecture  Laboratory  Field Experience

Other: Active supervised and independent work for a minimum of 12 hours a week per 3 credits. All meeting and course work is on a TBA basis, a minimum schedule of meetings will be established by the mentor and the student's committee.

10. Course Characteristics:

Course Repeat Limit Choose one.

Not repeatable for credit. (Most courses fall into this category)

Repeatable for credit. Maximum credit allowed: no limit.

(e.g. IS6997(3 credits) can be taken again if content changes)

Credit not applicable to degree program (prerequisite, e.g. IS5050)

Course Restriction

- X Course restricted Marine Science Master's Program students
- X Course restricted to: X graduate level

Course Approval      Approval of Instructor

Dean or Director

Course Linkage: No course Linkage, retakes are unlimited under retake policy

Limited:	Retakes will count against credits allowed under Forgiveness Policy.
Unlimited:	Retakes will not count against credits allowed** under Forgiveness Policy. Retakes of these courses <u>will not</u> be marked as retakes on student transcript; such as: ART (Academy), Cooperative Education (Internship, Practicum, Directed Reading).
Fundamental:	Retakes will not count against credits allowed** under Forgiveness Policy. Retakes of these courses <u>will</u> be marked as retakes on student transcript; such as: EFP, Sub 100 (ENG 099, MATH 099, etc.)
** 15 credits for Undergraduate Students, 6 credits for Graduate Students	

11. **What other HPU undergraduate/or graduate courses closely parallel the proposed course? Any cross-listings or course substitution for this course?**  
None.
12. **What is the educational purpose of the course and what is its relationship to other courses in the degree and in other programs?**  
This course provides the framework for participatory learning of scientific research under the direct supervision of the student's mentor in the laboratory, field or workstation. The student will work closely with the instructor to develop their own research skills both intellectual and practical. During this course the student will perform the research required for the generation of a Master's thesis and must perform a majority of their laboratory research before taking the capstone course NSCI 7000, Master's Thesis
13. **What are the minimum qualifications required for the instructor to teach this course, including academic degrees? What are the names of the proposed instructors for this course?**  
Ph.D. in the sciences. Ongoing research that can support student participation.  
Proposed Instructor: David Hyrenbach (Ph.D.)
14. **What institutional and/or learning support services are needed for the proposed course? Consider the following: special physical classroom needs, special classroom scheduling, classroom audio-visual/instructional technology, use of instructional labs, acquisition of materials, i.e., books, periodicals, computer, software, audio tapes, videotapes, etc.**  
This course will require the student to have access and ability to perform laboratory based research. Students in this course will be supervised by a mentor, who will be the course instructor with responsibility for evaluating the student's capability to complete the research and the quality of the resulting research products.
15. **Is this a core, capstone, concentration, and/or elective course?**  
This is a core course in the research based Master's program.
16. **Program applicability: (Master of Science and/or Master of Arts degrees, etc.)**  
Master of Science in Marine Science

**SUBMITTED BY:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**APPROVED BY DEAN:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**APPROVED BY GRADUATE COUNCIL:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**NSCI 6900**  
**Variable credits (1 to 3)**

**Master's Research**

**Any Semester (as needed)**

**INSTRUCTOR:** The students graduate committee chairpersons,  
office location, telephone, email address

**OFFICE HOURS:** The committee chairperson will be extensively available by arrangement or appointment

**COURSE MEETING TIMES AND LOCATION:** Conference room, instructor's office or laboratory with at least weekly meeting scheduled to monitor progress.

**ACADEMIC HONESTY:**

Graduate students are expected to comply with HPU's academic honesty policies but are further more required to understand the reasons for this policy and internalize the principles of scientific integrity. This thesis is the culmination of this process. The written product of this course can be submitted to turnit.com as a developmental process. All research results must be documented with laboratory notebooks, computer files of raw data and instrument read printouts. Data analysis and presentation must be accompanied by clear and accurate descriptions. All major writing assignments will be analyzed at Turnitin.com. For homework problems and any other take-home assignment, students may work with each other but must turn in their own answers to assigned problems. For additional information on plagiarism see the links in Campus Pipeline under the Libraries folder. Another excellent site explaining plagiarism (and how to avoid committing it) can be found at the Purdue University's Online Writing Lab at [http://owl.english.purdue.edu/handouts/research/r\\_plagiar.html](http://owl.english.purdue.edu/handouts/research/r_plagiar.html)

**TEXTBOOK:** No required texts but specific journals article or research specific monographs may be needed or be suggested by the instructor.

**OTHER REQUIRED RESOURCES:**

Computer: with professional word processing software, statistical analysis packages and scientific presentation software may be required depending on specific research project

Library: the students will need to use HPU's library online resources and will probably require access to the University of Hawaii's Graduate library as well. Interlibrary loans for specific rare book or obscure journals may also be required.

Research Laboratory: the student will be performing research in the committee chairperson's laboratory or research site. This could require funding for materials and supplies, travel or contract services, it is the responsibility of the chairperson to fund the student's expenses for research.

**COURSE DESCRIPTION:** MSMS students do research towards their thesis under the supervision of a research mentor, contributing to the initial research proposal or to their dissertation research. Variable credits.

**COURSE REQUIREMENTS:**

Pre-requisites: Acceptance into the MS in Marine Science program and establishment of a Master's Committee. The accomplishment of the pre-requisites will be determined by the student's graduate committee

**STUDENT LEARNING OUTCOMES**

After successful completion of the course, students should be able to

1. Design and perform experiments and other data collection activities in a relatively independent manner. The student will be able to achieve research objectives with limited supervision. *[assessed by instructor according to rubric]*
2. Integrate new experimental data into the existing body of scientific literature and explain this integration to the graduate committee. This includes the results of control, standardization runs and other aspects of properly conducted data acquisition. *[assessed by instructor according to rubric]*
3. Develop, with the assistance of the committee chair the next research activities. The student will be able to explain to the graduate committee the next series of experiments, laboratory activities or other data collection schemes. *[assessed by instructor according to rubric]*
4. Analyze, summarize and synthesize the experimental results into a document of preliminary results. *[assessed by the draft research proposal]*

## **COURSE POLICIES**

- Attendance and participation: The successful completion of a research project is the major requirement no specific attendance is required. The student is expected to devote a minimum of 15 hours a week to their research project.
- Late work: A specific schedule of research milestones will be developed by the committee in discussion with the student. Due dates for milestones will be developed and continued; missed deadlines could result in failure of the course.

## **ASSIGNMENTS**

- The written assignments will consist of any modifications of the preliminary research agenda, documentation of achievement of research milestones, an outline of the integration of the results into the eventual thesis and the record of research in the form of a research lab book. Data generated during the research phase must be adequately documented and archived. Research conducted in the first year of the MSMS program should contribute towards the formal research proposal, and should include a formal and extensive review of the existing scientific literature in addition to a research plan. Research conducted in the second year of the MSMS program should contribute towards the Master's thesis, supporting the methods and results sections as well as revisions or additions to earlier written sections.
- The student performance in the course will depend on the committee's acceptance of the student's milestones and monitoring the student's progress in accomplishing those milestones, and the rubric (attached).

## **GRADE DETERMINATION**

This course will be graded on the basis of the completion of the majority of the laboratory research milestones and the presentation of the data to the committee. The grade will be determined on the basis of student's presented criteria will include completeness, and professional appearance. A lack of progress as judged by the committee can be sufficient reason for failure of the course.

<b>Evaluation Rubric for Master's Research (NSCI 6900)</b>			
<b>Outcome</b>	<b>Level 1 (Needs improvement)</b>	<b>Level 2 (Meets expectations)</b>	<b>Level 3 (Performance above expectations)</b>
<b>Design and perform experiments and other data collection activities in a relatively independent manner. The student will be able to achieve research objectives with limited supervision.</b>	Needs continuous input from instructor on experimental design. Rarely performs data collection activities without the direction from the instructor.	Can design experiments and implement them (or other data collection activities) with some direction and input from the instructor.	Designs and implements experiments and other data collection activities with minimal input from the instructor. Suggests modifications or additions to existing experiments to address research goals.
<b>Integrate new experimental data into the existing body of scientific literature and explain this integration to the graduate committee. This includes the results of controls and standardization runs, as well as other aspects of properly conducted data acquisition.</b>	Missing significant portions of the existing scientific literature. Unable to integrate research design or results with the existing literature. Research protocols do not reflect best scientific practice.	Has assimilated most of the significant body of existing scientific literature. Integrates the new research design / results with the existing scientific literature. Research protocols usually reflect best scientific practice.	Has a firm understanding of the existing scientific literature and clearly articulates how the new research adds to the body of knowledge. Research protocols reflect best scientific practice.
<b>Develop the next research activities. The student will be able to explain to the graduate committee the next series of experiments, laboratory activities or other data collection schemes.</b>	Has difficulty designing or developing future research activities that build on earlier research activities.	With some input from the instructor can design and develop future research activities that build on earlier research activities.	Develops high quality research activities that build on earlier research with minimal input from the thesis instructor.
<b>Analyze, summarize and synthesize the background literature search and/or experimental results into a document of preliminary results.</b>	Few or poor quality materials are produced that contribute to the research proposal (year 1) or the thesis (year 2). Significant additions or revisions necessary.	Draft-quality materials are produced that contribute to the research proposal (year 1) or the thesis (year 2). Some additions or revisions are necessary.	High quality materials are produced that contribute to the research proposal (year 1) or the thesis (year 2). Few additions or revisions are necessary.