

MARS 4950  
Spring 2010

## SENIOR SCIENCE PRACTICUM – SYLLABUS FOR DIRECTED STUDY

Number of Credits:   3  

INSTRUCTOR:

### COURSE DESCRIPTION

The intent of the practicum is to provide students with an experience in a research environment that makes use of their prior and current academic experience, helps to hone their problem-solving abilities, develops scientific writing skills, and provides exposure to possible future career options.

### COURSE REQUIREMENTS

Students must first define the activities, timeline and goals for their practicum project and obtain approval from their sponsor and faculty advisor by completing a Practicum Proposal Contract. Students are expected to spend about 4 hours per week per credit hour (e.g. 4-12) during fall or spring semester (or an equivalent amount of time during the summer) working on their practicum project. Students should meet at least weekly with their primary supervisor (faculty advisor or sponsor) to assess progress.

The practicum has two academic requirements beyond the elements in the practicum contract.

- (1) to mark weekly progress, you are expected to keep a logbook reflecting on the problem-solving process of your day-to-day tasks. The logbook should reflect your thinking processes and analysis of events while you are actively learning in the workplace. It is not enough to mechanically go about doing tasks, but rather you should be aware of the actual or potential impacts of your tasks. The goal is to produce a log of your experiences that you can later use as a "How-To" or "How-Not-To" resource to guide your future professional endeavors. The journal will remain your property, although instructors will spot check for progress on logbook entries.

Specifically your logbook should record any or all of the following:

- ◆ any specific practical knowledge that you have gained
  - ◆ any incident that went especially well (identify the stages of planning and implementation)
  - ◆ any incident where there was a breakdown (identify sources of malfunction)
  - ◆ any incident that was particularly demanding (how was it dealt with successfully)
  - ◆ any incident in which you believe you made a unique contribution
  - ◆ any incident that stands out in your mind as particularly memorable or particularly unpleasant
  - ◆ any incident during which a "lightbulb" went off (re-create the thought process that led you there)
- (2) To wrap up your practicum experience, you will need to write a report on the research topic and results of your project. The components of the report will depend on the nature of the project. The report might address the following:
    - ◆ What were the questions driving the project? Was a specific hypothesis tested? What were the results? What were the conclusions? How does this project fit into other ongoing research? What are the unresolved questions and/or future work?
    - ◆ How did your actual practicum experience compare to your expectations – was the task list realistic? the time line realistic? the outcomes realistic? What significant factors/components of the project were not anticipated?
    - ◆ How did this experience shape your vision of a future career in marine sciences?

### GRADING

The final grade for this course will be determined by student performance according to the following criteria:

Logbook 25%                      Final Report 25%                      Sponsor evaluation (see attached form) 50%

**PRACTICUM PROPOSAL CONTRACT**

STUDENT NAME Chih-Wei Chang

SPONSOR ORGANIZATION NAME Hawaii Pacific University

SPONSOR ORGANIZATION ADDRESS

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city, state & zip Kaneohe, HI 96744

SPONSOR ORGANIZATION TELEPHONE & FAX

NAME OF SPONSORING INDIVIDUAL David Hyrenbach

TELEPHONE AND E-MAIL FOR PRACTICUM SPONSOR 808-263-3563

PROJECT DESCRIPTION (include problem being addressed, general nature of work done, location of work, other pertinent information)

The project will involve investigating patterns in the diet from albatross populations breeding in the Hawaiian Islands. Chick boluses (regurgitations) will be dissected and quantified in order to determine diet composition and the incidence and magnitude of plastic ingestion. This project will look for differences between two albatross species (Black-footed / Laysan), across five colonies and spanning multiple years (2007-2010). The work will be completed in the Brittingham laboratory, in accordance with Oceanic Institute biosecurity protocols.

PROJECT TASK LIST (numbered list of specific tasks to be completed by student)

1. Develop a research question
2. Read primary literature
3. Dissect albatross boluses
4. Quantify diet composition of boluses
5. Weekly meetings to discuss ideas and problems
6. Analyze results
7. Write a research report

PROJECT TIME LINE (dates for completion of tasks from above)

1. Develop research question (Wk 1-2)
2. Read primary literature (Throughout semester)
3. Dissect boluses (Wk 1-8)
4. Quantify diet composition (Wk 1-8)
5. Weekly meetings (weekly throughout semester)

6. Analyze results (Wk 9-10)
7. Write research report (Wk 9-12)

EXPECTED OUTCOME(S)/PRODUCTS (what does the host organization expect to result from the project?)

1. An independent research report from the student on their findings
2. contribution of work that will go towards a larger study on plastic ingestion within North Pacific albatross

USE OF PROJECT RESULTS (how will the project results be used?)

1. Results will go towards a research article to be published in a scientific journal
2. Results will also be used for professional presentations at scientific conferences and public talks