

## **FW 301 - Field Techniques for Marine Mammal Conservation**

**Dr. Scott Baker**

[Scott.Baker@oregonstate.edu](mailto:Scott.Baker@oregonstate.edu)

**Hatfield Marine Science Center**

### **Course Credits: 1**

Saturday/Sunday - 2-day, weekend course: 0800 - 1650

### **Course description:**

This is a 1-unit lab course to enhance the existing courses BI/FW 302 Biology and Conservation of Marine Mammals and FW/419/519 Natural History of Whales and Whaling. Laboratory provides hands-on lab/field experience for students who are taking or have taken the FW/BI 302 – Biology and Conservation of Marine Mammals course. Students will learn to use field techniques, computer software for data organization and analyses and understand the practical management conservation application.

Course is a full weekend at the Hatfield Marine Science Center. Class meets all day, both days and includes an outdoor component all morning both days followed by in class instruction in afternoons.

### **Prerequisites:**

FW/BI 302. Concurrent enrollment in the FW/BI 302 is acceptable.

### **Measurable Student Learning Outcomes:**

The successful student will be able to:

- a. Apply collection methods of marine mammal field data in a systematic framework.
- b. Produce a photo ID catalog of both harbor seals and gray whales.
- c. Analyze and compare field data using computer software tools and capture recapture methods to better inform management about conservation of marine mammals.
- d. Evaluate different methods of data collection and analysis to determine the most appropriate for a specific endangered marine mammal to meet conservation management objectives.

### **Evaluation of Student Performance:**

Participation in field studies (35%)

Field notebook (20%)

Marine mammal field study write up (45%)

Approximate score and letter grade equivalents are:

Approximate score and letter grade equivalents are:

A= >90%, B=81-90%, C=70-80%, D=57-69%, F=<55%.

Please note that +/- are included in these scores: i.e. 92% is an A-

### **Class participation in the field and in the classroom (35% of grade)**

35% of grade – Success in this course depends critically on being an active learner. This means being an active member of a group while collecting data (students will be assigned “tasks” within this group, and are expected to carry out the task successfully). Students are expected to read the material assigned and participate in the class discussion before heading out to the field. It is suggested students come to class with one or two comments written out so they can participate in the discussion. Students are expected to actively engage in all class and field sessions.

### **Field notebook (20% of grade)**

20% of grade – Students are required to keep a field notebook complete with date and time of field observations and detailed explanation of behavior and data collection. Field notebooks will be collected and reviewed. An example will be given in class on Saturday morning.

### **Field Study write-up (45% of grade)**

15% of grade – Harbor seal photo ID catalog and abundance estimate

15% of grade – Theodolite tracking of gray whales: calculations and 1-page summary of whale movement.

15% of grade – Gray whale photo ID catalog and abundance estimate and a 1-page summary of how photo ID could be used in a conservation management context.

### **Learning Resources we will cover in class:**

FORESTELL, P. H., G. D. KAUFMAN and M. Y. CHALOUKKA. 2011. Long-term trends in abundance of humpback whales in Hervey Bay, Australia. *Journal of Cetacean Research and Management* **Special Issue 3**: 237-242.

GAILEY, G., B. WURSIG and T. L. McDONALD. 2007. Abundance, behavior, and movement patterns of western gray whales in relation to a 3-D seismic survey, Northeast Sakhalin Island, Russia. *Environmental monitoring and assessment* **134**: 75-91.

PUGLIARES, K. R., A. BOGOMOLNI, K. M. TOUHEY, S. M. HERZIG, C. T. HARRY and M. J. MOORE. 2007. Marine Mammal Necropsy: An introductory guide for stranding responders and field biologists. *Woodshole Oceanographic Institute*: 1-133.

THOMPSON, P. M. and H. WHEELER. 2008. Photo-ID-based estimates of reproductive

patterns in female harbor seals. *Marine Mammal Science* **24**: 138-146.

**Other helpful learning resources:**

Berta, A., J. Sumich, and K. Kovacs. 2006. *Marine Mammals: Evolutionary Biology*. Academic Press.

**Course Schedule:**

It is required students bring a laptop to class (if this is a problem contact the instructor) to download programs used throughout this course.

**Pre-course Friday 8am-noon necropsy:** Students read pp1-22 in Pugliares et al 2007 before attending the necropsy Friday morning. Students will attend a necropsy on Friday morning, meeting in the ED30/32 classroom at 8am. After a short lecture and discussion of necropsies we will necropsy a pinniped and a cetacean.

**Pre-course assigned reading before Saturday morning:**

Before attending class Saturday morning, students will read the article by Thompson and Wheeler 2008 on photo-ID of harbor seals.

**Day 1, Saturday morning, Yaquina Head Lighthouse 8am-noon:** The class will meet in the classroom for a short discussion of the assigned reading and lecture on photo ID of harbor seals before heading to the Yaquina Head lighthouse. Students will use the theodolite to track gray whales. After this students will go to the beach to collect photos of harbor seals for photo ID.

**Day 1, Saturday afternoon in the classroom 1pm-5pm:** In the classroom students will use the theodolite data collected in the morning to determine the course of the whales. Students will develop a “catalog” of individuals from the photos they collected. Students are then given a catalog (of 10 harbor seals) to compare the main Newport catalog to the class catalog to determine any resights of animals. The class will use 2-occasion capture recapture harbor seal dataset to discuss how to estimate abundance using the Lincoln-Peterson equation.

**Assigned reading before Sunday morning:** Forestell et al 2011 on gray whale abundance.

**Day 2, Sunday morning, boat based survey in Depoe Bay 6am-10am:** Class meets in the classroom at 6am (!!!). Students will load up and head to Depoe Bay for our boat based field study of gray whales. The class will collect photo-identification data and information on any foraging behavior observed. After the boat trip students will visit Carrie’s Whale Museum where she will give us a tour and a guest lecture on gray whales along the Oregon coast.

**Day 2, Sunday late morning/early afternoon 11am-2pm:** Photo ID processing and analysis. Presentation on cetacean photo ID of gray whales. The students will identify individual whales and compare to a catalog of gray whales off the Oregon coast. Using a 3-year dataset of humpback whales the students will use closed models in Program Mark to calculate abundance.

**Day 2. Sunday early afternoon 2pm-4:50 pm:** Discussion on choosing appropriate methods to answer specific conservation questions.

**Disabilities Statement:**

"Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term to discuss accommodations. Students who believe they are eligible for accommodations but who have not yet obtained approval through DAS should contact DAS immediately at 737-4098."

**Equality in the Course:**

The instructor(s) are dedicated to establishing a learning environment that promotes diversity of all students' races, cultures, genders, sexual orientations and physical abilities. If you notice discriminatory behavior, or if you feel discriminated against, please bring it to the attention of the instructor(s).

**Academic Integrity:**

The instructor(s) will hold you accountable to the highest standards of academic integrity. Please read and understand the policies on academic integrity as published on the OSU website: <http://oregonstate.edu/studentconduct/>; <http://oregonstate.edu/studentconduct/http://%252Foregonstate.edu/studentconduct/code/index.php>