

**Instructor:** Doug Warrick [warrickd@science.oregonstate.edu](mailto:warrickd@science.oregonstate.edu)

**Teaching Assistant:** Luke Ferrenburg

**Class materials are posted on Canvas and it is your responsibility to access them at this site.**

**Learning Goals:** In this class students will:

- Explain ways in which marine birds and mammals make a living and how they interact and are shaped by their environment.
- Explain how scientists study these animals.
- Develop skills for observing and collecting information about marine birds and mammals in the field.
- Develop skills in asking testable research questions focused on marine birds and mammals.
- Use the primary literature to expand on the information you are learning in class and in the field.
- Develop an in-depth oral and written presentation.
- Synthesize data collected in a class project.

We use a variety of teaching techniques including lectures and activities within the lecture, field trips with field activities, a few laboratory exercises, and student led presentations. I expect you to take responsibility for your learning. During field trips and in class you will work in groups and we expect you to be an active participant. We welcome your questions, ideas and will ask for your input. We give a variety of assignments so that you have the opportunity to develop your writing and observational skills, oral presentations, and thinking skills. We use a variety of assessment and evaluation techniques including individual and group graded work.

**Books:** National Geographic Field Guide to Birds - this should accompany you on all of our field trips. Resource material in the B and M lab and library.

**Supplies:** You will need a Rite in the Rain field note book, and for laboratory sessions, a scalpel, tweezers, scissors, and a blunt probe. All of these can be purchased in the office. **Binoculars are essential.**

### **Week 1**

Tues June 21 Introduction. Marine bird diversity  
Field trip a.m. Bird identification skills Spotting scope use - lower Coos Bay  
Field trip p.m. Cormorant colonies. Hypotheses generation for PECO colony  
Introduction to species projects

Thur June 23 Bird identification – study skins  
Oceanography  
Field Trip: Coquille Point Rocks and Bandon Marsh NWR, Bandon – sack lunches  
Oceanography primer  
Library work for species summaries

### **Week 2**

Tues June 28 Field trip: Cape Arago and local area  
Avian social systems

Thur June 30 **Avian and marine mammal taxonomy quiz**  
**Oceanography presentation**  
Avian dissection – to hand in – Hypothesis 1 from dissection – individually graded

### **Week 3**

Tues July 5 **Independent Field Observation 1 due**  
Depart 7 a.m. All day trip to Newport - Oregon coast aquarium and bird colonies.  
To hand in: Field notes generated at aquarium on swimming in pinnipeds and birds and Hypothesis 2 centered on captive animals (spotting scope group graded)

Thur July 7 Pinniped social systems

North Cove pinniped field trip  
**Oceanography presentation**  
Species summaries work time

#### **Week 4**

Tues July 12 Ocean Boat trip 7.30 - 11.30  
Summary of boat trip  
Avian and marine mammal locomotion

Thur July 14 **Quiz on avian and pinniped social systems**  
Avian and marine mammal locomotion  
Field trip PECO check in  
Avian flight characteristics lab  
**Oceanography presentation**  
**Species summaries: WEGU, BRPE, COMU, BLOY**

#### **Week 5**

Tues July 19 Ocean boat trip 7.30 - 11.30 **to hand in: hypothesis 3 from on the boat observation (spotting scope group graded)**  
Summary of boat trip  
Avian and marine mammal feeding

Thur July 21 **Quiz on feeding and locomotion**  
Field Trip: Coquille Point Rocks, Bandon **to hand in: hypothesis 4 from field trip observation (spotting scope group graded)**  
Marine bird and mammal senses – olfaction and vision  
**Species summaries: BFAL, SOSH, RNPH**  
**Oceanography presentation**

#### **Week 6 Independent Field Observation 2 due**

Tues July 26 Diving biology  
PECO check in  
**Species summaries: Humpback whale, gray whale, blue whale**

Thur July 28 Field trip: TBD  
Marine mammal senses - sound production and reception  
**Species summaries: harbor seal, California sea lion, Steller sea lion, sea otter**  
**Oceanography presentation**

#### **Week 7**

Tues Aug 2 Field Trip – Cape Arago pinnipeds, Coquille Point Rocks, Bandon Marsh NWR – sack lunches  
Cetacean social systems  
**Species summaries: Dall's porpoise, harbor porpoise, Caspian Tern**

Thur Aug 4 **Quiz on diving, marine bird and mammal sensory biology and cetacean social systems**  
Marine mammal dissection – **to hand in: Hypothesis 5 from dissection (individually graded)**  
**Oceanography presentation**

#### **Week 8**

Tues Aug 09 PECO check in  
Marine birds and mammals as ocean indicators - Discussion of 2016 season  
**Quiz on the field season and general biology of the organisms (including material from s species summaries)**  
**End of day – hand in your species summaries**

Thur Aug 11 **Discussion of Pelagic Cormorant data and write up of data. Hand in by 14:00.**

## **ASSIGNMENTS**

### **Species Summaries**

The species summary assignment is designed to give you the opportunity to look at a single species in some depth and read the primary literature associated with that species. You will use the information to develop a presentation and a final piece of work that you will share with the class. Further details and an example will be given in class.

### **Field Note Books**

We expect you to take field notes on each of our field trips. They are a tool to help you sharpen your observation skills, and to assist you in learning about the biology of the animals. You should record observations that will assist you with learning the natural history of the animals you are observing, and observations that help you understand the material we are covering in class. You will take field notes at the Oregon Coast Aquarium and we would like you to record two sets of observations during your own time. These can be taken in your class field notebook or on separate paper. They should be taken in the field and not rewritten. You will hand these in to be graded. Expectations and a rubric for grading of field notes are provided on Canvas.

### **PECO Class Project: For details see: <http://oimbpeco.weebly.com/index.html>**

We will conduct a class project where we will record the chronology of breeding of the OIMB Pelagic Cormorant colony and synthesize these data with those collected previously to determine the success of the 2016 nesting season.

### **Hypotheses**

Developing questions that are interesting and can be answered experimentally is an important skill for scientists. This assignment will help you develop this skill. Further details will be given in class.

## **GRADING**

You will be graded on both your individual and group work. There are a total of 200 possible points. Grades are based on:

Species summary presentation in class 15 points  
Species summary final project 15 points  
PECO Class project data collection – group graded – 10 points  
PECO Class project analysis –group graded - 15 points  
Four quizzes 20 points each  
Five hypotheses - individually and group graded – 5 points each  
Aquarium field notes 5 points  
Two independent field notes - 10 points each  
In class oceanography presentation – group graded – 10 points  
Taxonomy quiz 5 points

Grade	Points
A	188 – 200
A-	181 - 187
B+	176 – 180
B	168 - 175
B-	161 - 167
C+	156 - 160
C	148 – 155
C-	141 – 147