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**Class materials are posted on Canvas (under “Files”) and you should be equipped with these material when you come to class.**

**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.

**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 25 Introduction  
Field trip a.m. Bird identification skills spotting scope use - lower Coos Bay  
Field trip p.m. Cormorant colonies.

Thur June 27 Oceanography  
Introduction to species projects Marine bird diversity  
Bird identification – study skins  
Avian Life History Patterns

☀ **Species summaries: Frigatebird\_drw**

Field Trip: Coquille Point Rocks and Bandon Marsh NWR, Bandon **(Sack lunches)**

### Week 2

Tues. July 2 ☺ **Quiz I: Avian and marine mammal taxonomy (15 pts)**  
Avian Anatomy  
Avian dissection

Thur July 4 No class

### Week 3

Tues July 9 ☺ **Independent Field Observation 1 due (IFO 1)**  
Depart 7 a.m. All day trip to Newport - Oregon coast aquarium and bird colonies. **(Sack lunches)**  
☺ **Aquarium Field Notes:** swimming in pinnipeds and birds  
☺ **Hypothesis 1:** captive animals (spotting scope group graded)

Thur July 11 Near-shore boat trip (0800 – 1130)  
Seabird, Pinniped Life History patterns  
Oceanography update  
Species summaries work time

#### **Week 4**

Tues July 16 Bay pinniped boat trip  
Seabird, Pinniped Life History patterns  
Marine mammal locomotion

Thur July 18 Bandon II  
Avian locomotion /flight characteristics  
☺ **Hypothesis 2:** from boat observations (spotting scope group graded)

#### **Week 5**

Tues July 23 ☺ **Quiz II: Avian/Pinniped Life History Patterns (20 pts)**  
Field trip: PECO check in/upper bay  
Avian feeding

☼ **Species summaries: Sperm Whale; Laysan Albatross; Leach's Storm Petrel\_drw**

Thur July 25 Near-shore boat trip (0730 - 1130)  
Marine bird and mammal senses: olfaction

☼ **Species summaries: Harbor Seal; COMU\_drw**

#### **Week 6**

Tues July 30 Another near-shore boat trip, to see Humpbacks and Blue Whales

☺ **Hypothesis 3:** from near-shore boat trip

☺ **IFO 2 due**

☼ **Species summaries: Gray Whale; Dall's Porpoise; CASL**

Thur Aug 1 Marine mammal feeding  
Field Trip: Haynes Inlet  
Point Adams Gull Experiment  
Marine bird and mammal senses: vision

☼ **Species summaries: Sea Otter; Harbor Porpoise; Humpback Whale**

#### **Week 7**

Tues Aug 6 Bandon Marsh NWR (**Sack lunches**)  
Diving biology

☼ **Species summaries: Pacific Loon; Northern E. Seal; Blue Whale**

Thur Aug 8 ☺ **Quiz III: Feeding and locomotion (20 pts)**  
Marine mammal senses - sound production and reception  
Marine mammal dissection: 0.75 neonate harbor porpoise, 0.25 Northern Right Whale Dolphin

## Week 8

Tues Aug 13 Betty Kay Boat trip (0700 – 1100)  
Cetacean Life History Patterns/social systems

☀ **Species summaries: Brown Pelican; Orca; Minke Whale**

☺ **End of day – hand in your species summaries**

Thur Aug 15 ☺ **Quiz IV (20 pts): marine bird and mammal sensory biology, diving, cetacean social systems; The Big Picture, general biology of the organisms (including material from species summaries and dissection)**

Marine birds and mammals as ocean indicators; humans as marine mammals; marine birds/mammals in the Anthropocene.

☀ **Species summaries: Marbled Murrelet**

☺ **Discussion of Pelagic Cormorant data**

## 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 2018 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 195 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 pts each)

Three hypotheses - individually and group graded – 5 points each

Aquarium field notes 10 points

Two independent field notes - 10 points each

Taxonomy quiz 15 points