

## **SYLLABUS**

### **-Course Name**

The natural history of whales and whaling

### **-Course Number**

FW419/FW 519

### **-Course Credits—**

This class combines approximately 90 hours of instruction/laboratory, field activities, readings, written assignments and a final debate for 3 credits.

### **-Prerequisites, Co-requisites and Enforced Prerequisites**

None, but some background in vertebrate ecology, evolution or genetics is recommended.

### **-Course Content**

During the last 200 years, whaling expanded into a global industry, systematically driving most populations of baleen whales (suborder: Mysticeti) and some larger toothed whales (suborder: Odonotoceti) to near extinction. This virtually eliminated an entire trophic level of the marine ecosystem, particularly in the Southern Hemisphere. Although viewed by some as a relic of the past, whaling remains a strong imperative for some native people and national interests. The course addresses the natural history of whales as a unique example of adaptation in an evolutionary lineage, and the history of whaling as a general example of the failings of international resource management.

### **Schedule**

<b>Week</b>	<b>Topic</b>	<b>Lab</b>	<b>Assignments due</b>
1	Evolutionary origin of cetaceans	Lab 1 – On adaptations	
2	Taxonomy, diversity and species concepts	Lab 2 – On species identification, DNA surveillance	Lab 1
3	Feeding grey whales (with CERMS)	Field trip – Discovery Cruises	
4	Biogeography and population structure	Lab 3 – On biogeographic forces	Lab 2
5	Migration and habitat use	Essay assignment	Lab 3
6	Life history parameters of whales	Debate topic	
7	History of whaling and management	Lab 4 – On life history parameters	Field trip
8	Modeling the past and future of whales	Lab 5 – On population growth	Lab 4
9	Whales, whaling, and ecosystem change	Group discussion: future of the IWC	Lab 5
10	Debate preparation (dead week)	Debate preparation	Essay
11	Whaling debate (final)		

Other topics that may be substituted in above may include: Trophic ecology; and IWC and current management procedures

**-Measurable Student Learning Outcomes--** see [Student Learning Outcomes](#) for a definition and instructions. (For 419/519 courses, list appropriate distinctions in outcomes between the 419 and 519 versions of the course.)

FW 419 students will be able to:

**Describe** the natural history of whales and **Outline** how this natural history is an example of adaptation in an evolutionary lineage

**Evaluate** the history of whaling as a general example of the failings of international resource management or a 'tragedy of the commons' on a global scale.

**Demonstrate** a willingness to participate in class discussions

**Generate** reports and laboratory assignments using critical thinking and some references from the primary literature

In addition FW 519 students will be expected to:

**Make extensive use of** primary literature in assignments, **critically appraise** the references and **integrate** differing views in the context of the class debate.

### **-Evaluation of Student Performance**

GRADING will be based on class attendance and participation, lab write-ups, an essay on a topic dealing with conservation or management (to be discussed with the course instructor), and panel evaluation of an organized debate on the sustainability of whaling. Graduate students (FW 519) will be held to a higher standard of scholarship in the essay and lab write-up, including citation and critical appraisal of primary literature, and are expected to take a leadership role in the debating teams.

Attendance and participation 10%

Essay 20%

Debate 20% (as evaluated by 3 judges)

Field trip 10%

Lab write-ups (4 x 10%) 40%

Note: The course schedule includes 5 lab or take-home assignments and a report on the field trip, each worth 10%. Grades from the best 5 out of 6 lab/assignments will be used. Late assignments: Late assignments will result in a deduction of 1 point in the first week and 2 points after that. NO assignment will be accepted after Week 10.

Laboratory and take-home assignments

- 1) Lab 1 On Adaptation
- 2) Lab 2 On species identification and molecular taxonomy
- 3) Lab 3 On biogeographic forces
- 4) Lab 4 On life history parameters
- 5) Lab 5 On population growth
- 6) Field trip – Natural history of gray whales

Essay (20%) Topic as decided during discussion with course instructor

Student Debate (20%) in lieu of final exam

Resolved: *That whaling is sustainable*

Format: "The Karl Popper debate, named after the famed philosopher, was created by the Open Society Institute as a flexible team debate format. It focuses on relevant and often deeply divisive propositions, emphasizing the development of critical thinking skills, and tolerance for differing viewpoints. To facilitate these goals, debaters work together in teams of three, and must research

both sides of each issue. Constructed similarly to the Lincoln-Douglas debate format, each side is given the opportunity to offer arguments and direct questions to the opposing side. The first speakers of each side have 6 minutes to present their constructive cases, on in the negative's case a rebuttal case. The other 4 speakers each have 5 minutes to deliver a speech supporting their team's main arguments. There is also an allotted 3 minutes after each of the first 4 speeches for cross-examination, during which the opposing team has a chance to clarify what was stated in the preceding speech.” <http://en.wikipedia.org/wiki/Debate>

#### **-Learning Resources--**

No required text. Recommended general reading:

Berta, A., Sumich, J. L. & Kovacs, K. M. 2006 Marine mammals: evolutionary biology, 2nd edn. San Diego, CA: Academic Press.

Estes, J. A., D. P. DeMaster, R. L. Brownell Jr., D. F. Doak, and T. M. Williams. 2006. Whales, whaling, and ocean ecosystem. University of California Press, Berkeley.

Perrin, W. F., B. Würsig, and J. G. M. Thewissen. 2009. Encyclopedia of marine mammals, Second Edition. Academic Press, San Diego

#### **-Statement Regarding Students with Disabilities**

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.

#### **-Link to Statement of Expectations for Student Conduct**

Student conduct: <http://oregonstate.edu/studentconduct/regulations/index.php#acdis>

1. Academic honesty: Lab reports, write-ups and essays are expected to be entirely the student's own work. Plagiarism from other students, online sources, or references is not acceptable. Where concepts from literature etc are used, clearly attribute these to their sources.

2. Expectations for civility and behavior in class: Being an encouraging class member and assisting other students in the class with course concepts is encouraged. Also encouraged is asking for clarification from the instructor if anything is unclear!