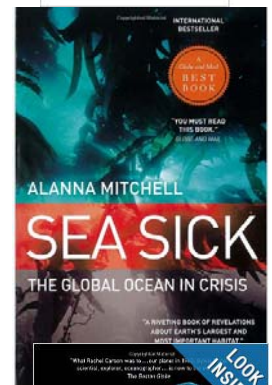
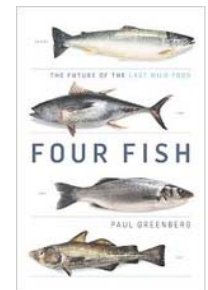


BIOLOGY 335 (20308) Jan 2016 ICHTHYOLOGY

Biology of Fishes

- **Lecturer: Dr. T. E. Reimchen, Office-Cunn 056, Phone 721-7101**
- **Lab Coordinator: Dr. Neville Winchester, Cunn 232 721-7099,**
- **....winchest@uvic.ca**
- **Lecture: 0830-0920, Tues, Wed, Fri; ECS 124**
- **Laboratory: Petch 110**
-
- **Outline of Lecture Topics**
- **Overview of morphology, anatomy and genomics of fishes**
- **Diversity - hagfish to tiger shark to manta ray**
- **- lungfish to moray to herring to salmon to lanternfish**
- **- rockfish to parrotfish to seahorse to halibut to sunfish**
- **Swimming hydrodynamics - propulsion, drag, boundary layer**
- **Physiology - buoyancy, osmoregulation, thermoregulation**
- **Sensory modes - mechanoreceptors, electrosensors, olfaction, vision**
- **Behavioral ecology - reproduction, foraging, coral reef fishes**
- **Natural selection and adaptation - stickleback in coastal lakes**
- **Fisheries science - principles, applications, limitations**
- **Fisheries - commercial, artisanal and recreational**
- **Global fishery crisis - major causes and ecological impacts**
- **Conservation : marine fishes: Law of the Sea, FAO Code of Conduct,**
- **no-take zones, marine protected areas**
- **Conservation : freshwater fishes: habitat loss and exotic species**

- **Course reading material:**
- **Text Books (Optional) :** Fishes: An introduction to Ichthyology. Authors: Moyle and Cech, 2004. Cost- ca. \$120 (second hand will do)
- **Texts in Reserve Reading Room (McPherson Library):** Authors: Helfman, Collette and Facey, 1997, The diversity of fishes; Moyle and Cech; Fishes: An Introduction to Ichthyology; Nelson: Fishes of the World; Aleyev: Nekton; Most powerpt images used in the lectures are available from the Biol 335 CourseSpaces website after the lectures.
- **Thought-provoking:** The Unnatural History of the Sea: Author- C. Roberts; The Empty Ocean: Author- R Ellis 2003; Song for the Blue Ocean: Author- C. Safina 1998; Lament for an Ocean: Author- M. Harris, 1998; Four Fish, The Future of the Last Wild food. Author: P. Greenberg, 2010. Sea Sick – Author: A. Mitchell 2009; The World is Blue- Author: Sylvia Earle., 2010
- **DVD: Suggested viewing:** The Blue Planet by David Attenborough
- **(8 one hour programs); Planet Earth by David Attenborough; Deep Blue; Oceans ; Sharkwater**
- **Students are expected to browse ichthyological content relevant to lecture material of online biological periodicals or hardcopies in McPherson Library. Examples of periodicals relevant to this course are Can. J. Zoology, Can. J. Fisheries & Aquatic Sciences, Copeia, Evolution, Nature, New Scientist, Science, American Scientist, Trends in Ecology and Evolution.**
- **Web of Science , Google, Google Scholar, Wikipedia, Fishbase.org**



Grades

Lectures (50%)

Mid-term Exam(multiple choice) 20% (Feb 16)

Final Exam (multiple choice and essay) 30% (date-TBA)

Laboratory (50%)

- **Lab Mark Breakdown**

- Your lab mark is 50% of your final course grade and is divided as follows:

- **Field Trip Participation**

MARKS

- There will be a series of 4-6 scheduled field trips. 2%
You are expected to participate in at least 2 of these trips.

- **Midterm:** Exercise modules – written exam 10%

- **Midterm:** Biodiversity modules-Identification 13%

- **Final:** Exercise modules – written exam 10%

- **Final:** Biodiversity modules-Identification 15%

- **TOTAL** 50%

- **NOTE:** Biodiversity module exams are open book – Your lab TA will say more about this.

- The biodiversity module final exam is not cumulative. Exercise module exams are closed book. The exercise module final exam is cumulative, however the majority of the exam will be based on material presented after the midterm.

- **Note:** Students not wanting their marks posted using ID# (last 5 digits) should notify me at the beginning of the term. It is the student's responsibility to meet the ADD/DROP dates from the UVic calendar. Students are responsible for checking their own records and registration status, available via WebView (www.uvic.ca/reco). Deferred exams will be offered only for medical issues. Students receiving less than 40% on the final lecture exam receive a failing grade for the course.

“UVic is committed to promoting, providing and protecting a supportive and safe learning and working environment for all its members”.

Labs: Students will a) examine external and internal anatomy of fish, b) identify representative fishes of the world including major marine and freshwater fishes of British Columbia, c) examine measurement bias on fish, d) examine hydrodynamics and body forms, e) observe fish behavior f) gain experience in field sampling techniques

First lab: Jan 11 week: fish dissection, bring a lab coat, memory stick, laptop/tablet (if available)

:lab hand-out posted on website (Course Spaces)

: anyone not registered for a lab section should go to the section that fits their schedule for next week.

LAB SCHEDULE – SPRING 2016

Lab #	Date (week of)	Content
1	January 4	NO LABS
2	January 11	Biodiversity 1: Agnathans, Placoderms, and Chondrichthyes Exercise: Fish anatomy and measurements Ecological sampling topic of the week
3	January 18	Biodiversity 2: Sturgeons to Herrings Exercise; Functional Morphology; Ecological sampling topic of the week
4	January 25	Biodiversity 3: Minnows, Salmon, and Trout-Perches Measurement bias Part 1: Ecological sampling topic of the week
5	February 1	Lab Midterm exam: Biodiversity modules Biodiversity 4: Flying fish, Sticklebacks Measurement bias Part 2: Ecological sampling topic of the week
6	February 8	READING BREAK – NO LABS
7	February 15	Lab Midterm Exam: Exercise modules
8	February 22	Biodiversity 5: Rockfish, Wolf-eels Exercise: Hydrodynamics Ecological sampling topic of the week
9	February 29	Biodiversity 6: Sandlances, Sugreonfishes Exercise: Fish Gut Analysis 1 Ecological sampling topic of the week
10	March 7	Biodiversity 7: Fighting fish, Flatfishes, Triggerfishes, Sunfish Exercise: Fish Gut Analysis 2 Ecological sampling topic of the week
11	March 14	Lab Final Exam; Exercise modules Biodiversity Review
12	March 21	Lab Final Exam: Biodiversity modules
13	March 28	NO LABS

