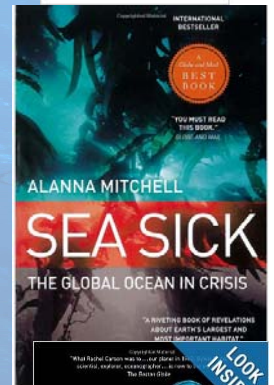
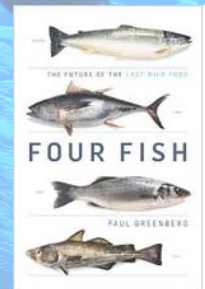


BIOLOGY 335 (20344) Jan 2017 ICHTHYOLOGY

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; COR A125**
- **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- Law of the Sea, FAO Code of Conduct,**
- **no-take zones, marine protected areas**
- **Conservation : freshwater - habitat loss and exotic species**
- **Future prospects**

- **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 10)

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”.

BIOLOGY 335 – LAB SCHEDULE – SPRING 2017

Lab #	Date (week of)	Content															
1	January 2	NO LABS															
2	January 9	Identification 1: Agnathans, Placoderms, and Chondrichthyes Exercise: Fish anatomy and measurements Ecological topic of the week	Lab Mark Breakdown														
3	January 16	Identification 2: Sturgeons to Herrings Exercise: Functional Morphology Ecological topic of the week	Your lab mark is 50% of your final course grade and is divided as follows:														
4	January 23	Identification 3: Minnows, Salmon, and Trout-Perches Exercise: Measurement bias Part 1 Ecological topic of the week	<table border="0"> <tr> <td>Field Trip Participation</td> <td align="right">MARKS</td> </tr> <tr> <td>There will be a series of 4-6 scheduled field trips. You are expected to participate in at least 2 of these trips.</td> <td align="right">2%</td> </tr> <tr> <td>Midterm: Ecological topics – written exam</td> <td align="right">8%</td> </tr> <tr> <td>Midterm: Identification/Exercise</td> <td align="right">15%</td> </tr> <tr> <td>Final: Ecological topics– written exam</td> <td align="right">10%</td> </tr> <tr> <td>Final: Identification/Exercise</td> <td align="right">15%</td> </tr> <tr> <td>TOTAL</td> <td align="right">50%</td> </tr> </table>	Field Trip Participation	MARKS	There will be a series of 4-6 scheduled field trips. You are expected to participate in at least 2 of these trips.	2%	Midterm: Ecological topics – written exam	8%	Midterm: Identification/Exercise	15%	Final: Ecological topics– written exam	10%	Final: Identification/Exercise	15%	TOTAL	50%
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TOTAL	50%																
5	January 30	Lab Midterm Quiz: Ecological Topics Identification 4: Flying fish, Sticklebacks Exercise: Measurement bias Part 2 Ecological topic of the week															
6	February 6	Lab Midterm Identification/Exercise Exam															
7	February 13	READING BREAK – NO LABS															
8	February 20	Identification 5: Rockfish, Wolf-eels Exercise: Hydrodynamics Ecological topic of the week	<p>NOTE:</p> <p>The ecological topics midterm and final quiz are closed book.</p>														
9	February 27	Identification 6: Sandlances, Sugeonfishes Exercise: Fish Gut Analysis 1 Ecological of the week	<p>The Identification/Exercise midterm and final exam are open book – Your lab TA will say more about t</p> <p>The ecological topic final exam is not cumulative.</p>														
10	March 6	Identification 7: Fighting fish, Flatfishes, Triggerfishes, Sunfish Exercise: Fish Gut Analysis 2 Ecological topic of the week	The Identification/Exercise final exam is cumulative, however the majority of the exam will be based c material presented after the midterm.														
11	March 13	Lab Final Quiz: Ecological Topics Identification Review															
12	March 20	Lab Final Identification/Exercise Exam															
13	March 27	NO LABS – Hand back final quiz and exam															