

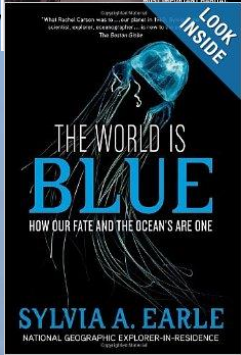
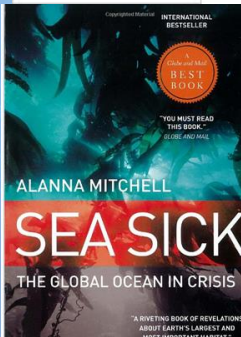
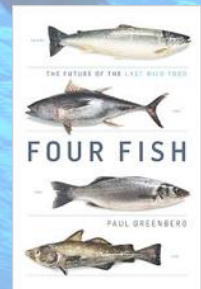
# **BIOLOGY 335 (20355) Jan 2018 ICHTHYOLOGY**

## **Biology of Fishes**

- **Lecturer: Dr. T. E. Reimchen, Office-Cunn 056, Phone 721-7101**
- **Lab Coordinator: Mauricio Carrasquilla, .... mcarrasq@uvic.ca**
- **Lecture: 0830-0920, Tues, Wed, Fri; COR A125**
- **Laboratory: Petch 110**
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- **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- second hand copies will do
- Texts in Reserve Reading Room (McPherson Library):
- Helfman, Collette and Facey, 1997, The diversity of fishes
- Moyle and Cech; Fishes: An Introduction to Ichthyology
- Most powerpt images used in the lectures are available from the Biol 335 CourseSpaces website after the lectures.

- Thought-provoking: C. Roberts- The Unnatural History of the Sea\*
- R Ellis 2003 -The Empty Ocean:
- C. Safina 1998 -Song for the Blue Ocean:
- M. Harris 1998- Lament for an Ocean:
- P. Greenburg 2010 -Four Fish, The Future of the Last Wild food.
- A. Mitchell 2009 - Sea Sick
- S. Earle 2010 -The World is Blue
- \*best
- DVD: Suggested viewing: Blue Planet and BluePlanet2\* by David Attenborough
- (8 one hour programs); Planet Earth; 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(multi-choice)	15% (Feb 09)
Pop lecture quiz (written)	5%(date- TBA)
Final Exam (multi-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:

• <b>Field Trip Participation</b> 4-6 scheduled field trips.	2%
• You are expected to participate in each but are <u>required</u> to participate in 2 of these trips.	
• <b>Midterm:</b> Exercise modules – written exam	10%
• <b>Midterm:</b> Biodiversity modules-Identification	13%
• <b>Final:</b> Exercise modules – written exam	10%
• <b>Final:</b> Biodiversity modules-Identification	15%
• <b>TOTAL</b>	<b>50%</b>

- **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](http://www.uvic.ca/reco)). Deferred exams will be offered only for medical issues. Students receiving less than 45% 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 2018**

Lab #	Date (week of)	Content
1	January 8	Exercise: Fish anatomy and measurements Identification 1: <u>Agnathans, Placoderms, and Chondrichthyes</u> Ecological topic of the week
3	January 15	Exercise: Functional Morphology Identification 2: Sturgeons to Herrings Ecological topic of the week
4	January 22	Exercise: Measurement bias Part 1 Identification 3: Minnows, Salmon, and <u>Trout-Perches</u> Ecological topic of the week
5	January 29	<b>Lab Midterm Quiz: Ecological Topics</b> Exercise: Measurement bias Part 2 Identification 4: Flying fish, Sticklebacks Ecological topic of the week
6	February 5	<b>Lab Midterm Identification/Exercise Exam</b>
7	February 12	READING BREAK – NO LABS
8	February 19	Exercise: Hydrodynamics Identification 5: Rockfish, <u>Wolf-eels</u> Ecological topic of the week
9	February 26	Exercise: Fish Gut Analysis 1 Identification 6: <u>Sandlances, Surgeonfishes</u> Ecological topic of the week
10	March <u>5</u>	Exercise: Fish Gut Analysis 2 Identification 7: Fighting fish, Flatfishes, Triggerfishes, Sunfish Ecological topic of the week
<u>11</u>	March 12	<b>Lab Final Quiz: Ecological Topics</b> Identification Review