

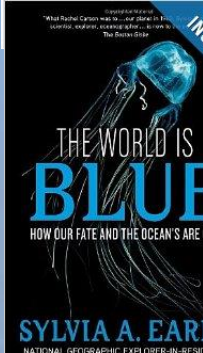
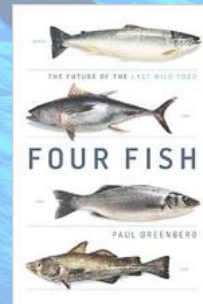
BIOLOGY 335 (20348) Jan 2019 ICHTHYOLOGY

Biology of Fishes

- Lecturer: Dr. T. E. Reimchen, Office-Cunn 056, Phone 721-7101
- Lecture: 0830-0920, Tues, Wed, Fri; COR A125
- Laboratory: Petch 110
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- **Outline of Lecture Topics**
- Overview of morphology and anatomy of fishes
- Diversity
 - hagfish to tiger shark to manta ray
 - lungfish to moray to salmon to lanternfish
 - rockfish to seahorse to halibut to sunfish
- Swimming hydrodynamics - propulsion, drag, boundary layer, fin function
- 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:**
- **A. Mitchell 2009 - Sea Sick**
- **S. Earle 2010 -The World is Blue**
- **DVD: Suggested viewing: Blue Planet and Blue Planet2* by Attenborough; Planet Earth; Deep Blue; Oceans; Sharkwater**
- **Students are expected to browse ichthyological content relevant to lecture material of online biological periodicals : New Scientist, Science, Trends in Ecology and Evolution.**
- **Web of Science, Google Scholar, Wikipedia,**



Grades

Lectures (50%)

Mid-term Exam(multiple choice)	20% (Feb TBA)
Pop lecture quiz	5%(date- TBA)
Final Exam (multiple choice and essay)	25% (date-TBA)

Laboratory (50%)

Biology 335- Lab Schedule- Spring 2019

Lab #	Date (week of)	Content
1	January 9	<ul style="list-style-type: none"> • Exercise: Fish anatomy and measurements • Identification 1: Agnathans, Placoderms, and Chondrichthyes • Ecological Techniques 1
2	January 16	<ul style="list-style-type: none"> • Exercise: Functional Morphology • Identification 2: Sturgeons to Herrings • Ecological Techniques 2
3	January 23	<ul style="list-style-type: none"> • Exercise: Measurement bias Part 1 • Identification 3: Minnows, Salmon, and Trout-Perches • Ecological Techniques 3
4	January 30	<p style="text-align: center;">Lab Midterm Quiz: Ecological Techniques (1-3)</p> <ul style="list-style-type: none"> • Exercise: Measurement bias Part 2 • Identification 4: Flying fish, Sticklebacks • Ecological Techniques 4
5	February 6	Lab Midterm Exercise/ Identification Exam
6	February 13	<ul style="list-style-type: none"> • Exercise: Hydrodynamics • Identification 5: Rockfish, Wolf-eels • Ecological Techniques 5
	February 20	READING BREAK – NO LABS
7	February 27	<ul style="list-style-type: none"> • Exercise: Freshwater fishes and open-source fish data • Identification 6: Sandlances, Surgeonfishes • Ecological Techniques 6
8	March 6	<ul style="list-style-type: none"> • Exercise: Marine fishes and global data sets • Identification 7: Fighting fish, Flatfishes, Triggerfishes, Sunfish • Ecological Techniques 7
9	March 13	<p style="text-align: center;">Lab Final Quiz: Ecological Techniques (4-7)</p> <ul style="list-style-type: none"> • Exercise: Emerging techniques in ichthyology • Identification Review
	March 20	Lab Final Exercise/ Identification Exam
	March 27	NO LABS – Hand back final quiz and exam

Lab Mark Breakdown

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

Component	Mark
Field Trip Participation There will be a series of 4-6 scheduled field trips. You are expected to participate in each, but are required to participate in 2 of these trips	2%
Lab Participation You will participate in weekly lab exercises, and will receive a participate mark for doing so. Your TA will outline what is expected during each lab.	5%
Midterm: Ecological Techniques – written exam	8%
Midterm: Identification/Exercise	12%
Final: Ecological Techniques – written exam	8%
Final: Identification/Exercise	15%
Total	50%

NOTE:

The ecological techniques midterm and final quiz are closed book.

The ecological techniques final exam is not cumulative.

The Identification/Exercise midterm and final exam are open book – Your lab TA will say more about this.

The Identification/Exercise 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 (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”.