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:

- 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 power pt images used in the lectures are available from the Biol 335 CourseSpaces website after the lectures.


- 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

    • There will be a series of 4-6 scheduled field trips. 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.”
<table>
<thead>
<tr>
<th>Lab #</th>
<th>Date (week of)</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>January 2</td>
<td>NO LABS</td>
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| 2     | January 9      | Identification 1: Agnathans, Placoderms, and Chondrichthyes  
Exercise: Fish anatomy and measurements  
Ecological topic of the week |
| 3     | January 16     | Identification 2: Sturgeons to Herrings  
Exercise: Functional Morphology  
Ecological topic of the week |
| 4     | January 23     | Identification 3: Minnows, Salmon, and Trout-Perches  
Exercise: Measurement bias Part 1  
Ecological topic of the week |
| 5     | January 30     | Lab Midterm Quiz: Ecological Topics  
Identification 4: Eel, 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 |
| 9     | February 27    | Identification 6: Sandlances, Sugeonfishes  
Exercise: Fish Gut Analysis 1  
Ecological of the week |
| 10    | March 6        | Identification 7: Fighting fish, Flatfishes, Triggerfishes, Sunfish  
Exercise: Fish Gut Analysis 2  
Ecological topic of the week |
| 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 |