BIOLOGY 335 (20354) Jan 2025
ICHTHYOLOGY -Biology of Fishes

- Lecturer: Dr. T. E. Reimchen (reimchen@uvic.ca)
- Lecture: 0830-0920, Tues, Wed, Fri
- Laboratory Co-ordinator Dr. Rossi M. Marx (zoology@uvic.ca)
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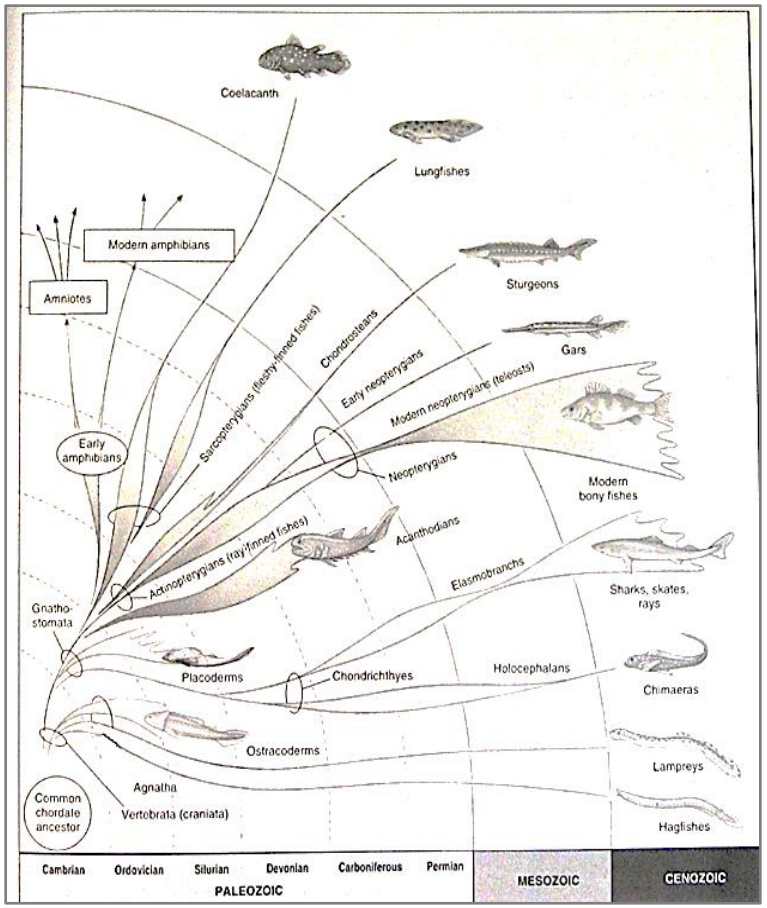
- **Outline of Lecture Topics**
- General morphology and anatomy of fishes
- Taxonomic diversity, life history and habitat - hagfish to halibut
- Swimming hydrodynamics - propulsion, drag, boundary layer, fin function
- Physiology - buoyancy, osmoregulation, O2 uptake
- Sensory modes - chemoreception, mechanoreceptors, electroreception, vision,
- nociception, perception
- Behavioral ecology - reproduction, foraging, parasitism
- Natural selection and adaptation: Haida Gwaii stickleback, coral reef fishes
- Fisheries science –principles, establishing quotas, MSY, applications
- BC and global trends in fish abundance, major causes for declines
- Conservation: Law of the Sea, FAO Code of Conduct, no-take zones,
- marine protected areas, rockfish conservation zones, FW habitat
- Emerging issues: ocean chemistry, soundscape
- Summary



Lab Mark Breakdown

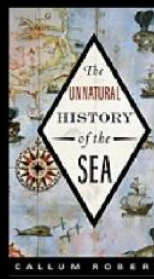
Your lab mark is 45% of your final course grade and is divided as follows:

Component	Mark
Lab Participation You will participate in lab exercises and will receive marks for doing so. Your TA will outline what is expected during lab.	14%
Midterm Exercises / Identification Exam: Fish identification + questions	14%
Final Exercises / Identification Exam: Fish identification + questions	17%
Total	45%

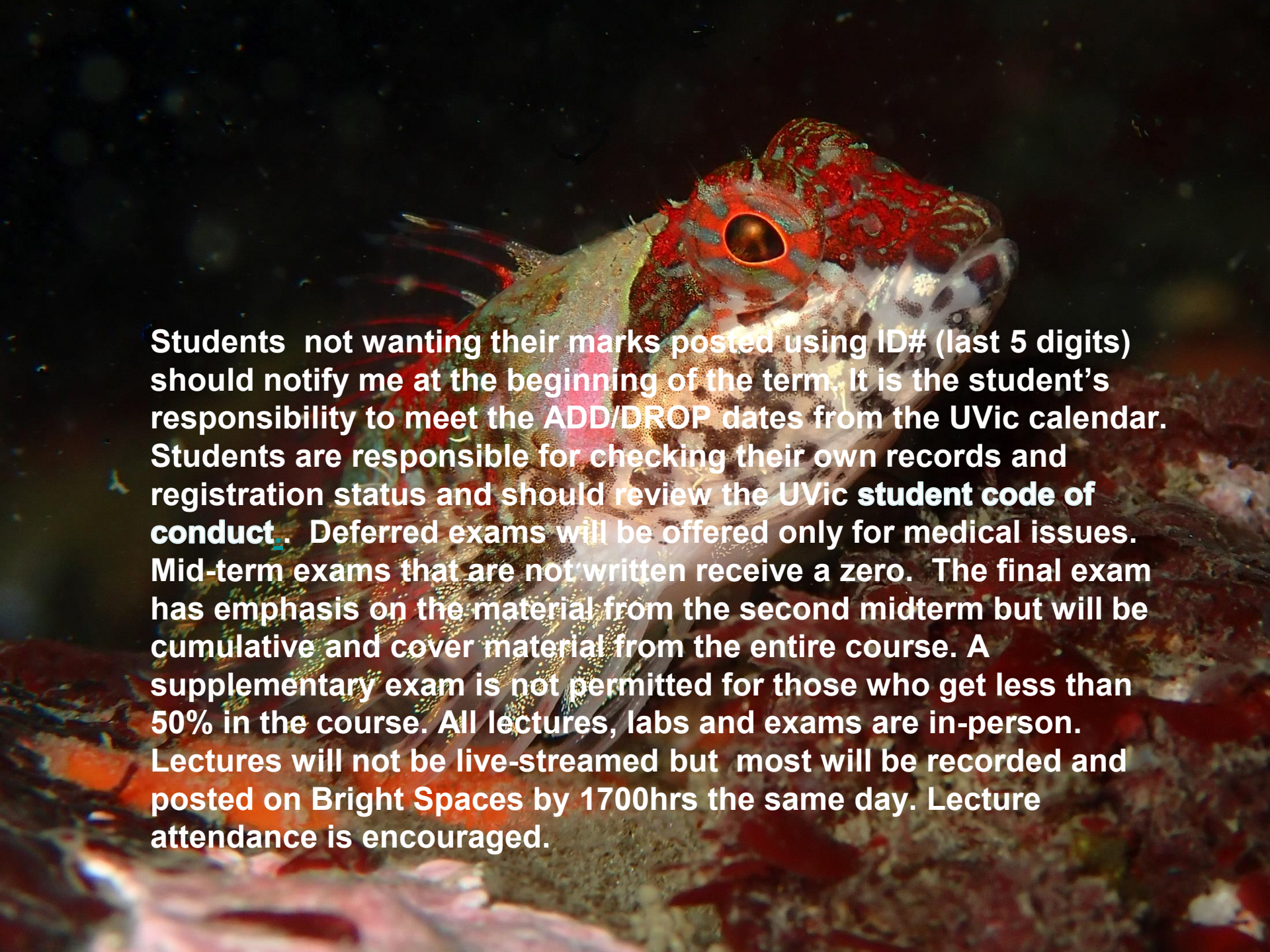
Week	Date	Content
1	January 09	➢ Exercise: Fish anatomy and measurements ➢ Identification 1: Agnathans, Placoderms, and Chondrichthyes ➢ Ecological Techniques 1
2	January 16	➢ Exercise: Fish functional anatomy / Measurement bias, part 1 ➢ Identification 2: Osteichthyes (Sarcopterygii, Sturgeons to Herrings) ➢ Ecological Techniques 1 Discussion
3	January 23	➢ Exercise: Measurement bias, part 2 ➢ Identification 3: Ostariophysi: Minnows to Catfishes ➢ Ecological Techniques 2
4	January 30	➢ Identification 4: Salmon to Trout-Perches
5	February 06	Lab Midterm Exercise / Identification Exam
6	February 13	➢ Exercise: Hydrodynamics ➢ Identification 5: Flying fish, Sticklebacks, Rockfish, Sculpins ➢ Ecological Techniques 3
7	February 20	READING BREAK – NO LABS
8	February 27	➢ Identification 6: • Scorpaeniformes (continued): Poachers to Snailfishes • Perciformes: Black Sea Bass to Pricklebacks ➢ Ecological Techniques 4
9	March 06	➢ Identification 7: • Perciformes (continued): Pholidae (Gunnels) to Channidae (e.g. Northern Snakehead) • Pleuronectiformes: Pleuronectidae (e.g. Soles) to Paralichthyidae (Sanddabs) • Tetraodoniformes: Balistidae (Triggerfishes) to Molidae (Sunfishes)
10	March 13	➢ Exercise: FishSounds Lab - Bioacoustics in Marine Research ➢ Identification Review
11	March 20	Lab Final Exercise / Identification Exam
12	March 27	Exam viewing

- **Course reading material: (in Reserve Reading Room, McPherson Library)**
- **Moyle and Cech, 2004. Fishes: An introduction to Ichthyology**
- **Helfman, Collette and Facey, 1997, The diversity of fishes**
- **A textbook is not required for the course but students particularly interested in fishes may opt to purchase a secondhand copy of an Ichthyology text on E-Bay, etc**

- **Thought-provoking reading:**
- **C. Roberts- 2007. 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**
- **Suggested viewing: Blue Planet2 , Planet Earth, Our Oceans, Seaspiracy, Sharkwater, etc**



- **MARKS** [4]
- **Lecture Midterm Quiz #1 (Feb 4) (short answers) 10%**
- **Lecture Midterm Quiz #2(Mar 5) (short answers) 15%**
- **Lecture Final Exam (multi-choice, short answers, essay) 30%**
- **Laboratory 45%**



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 and should review the UVic **student code of conduct**. Deferred exams will be offered only for medical issues. Mid-term exams that are not written receive a zero. The final exam has emphasis on the material from the second midterm but will be cumulative and cover material from the entire course. A supplementary exam is not permitted for those who get less than 50% in the course. All lectures, labs and exams are in-person. Lectures will not be live-streamed but most will be recorded and posted on Bright Spaces by 1700hrs the same day. Lecture attendance is encouraged.

Intended learning outcomes

- On completion of the course, students should be able to discuss each topic listed in the course outline including:
- 1: the geological history and evolution of fishes
- 2: hydrodynamics processes influencing form and function of fishes
- 3: physiology, sensory and behavioral biology of fishes
- 4: role of natural selection in structuring genetic and phenotypic variation
- 5: principles and applications of Fishery science -successes and failures
- 6: international treaties including the Law of the Sea and the Code of Conduct for Responsible Fisheries
- 7: conservation of fishes (IUCN categories, no-take zones, MPAs)
- 8: Laboratory content- acquire quantitative skills for the study of fishes and identify representative species from most groups of marine and freshwater fishes with particular attention to BC

We acknowledge and respect the Lək̓ʷəŋən (Songhees and Esquimalt) Peoples on whose territory the university stands, and the Lək̓ʷəŋən and W̱SÁNEĆ Peoples whose historical relationships with the land continue to this day.