

VERTEBRATE BIOLOGY (BIOL 330)

3 credits, Winter semester, January – April 2020 Course prerequisites: BIOL225, BIOL226

INSTRUCTOR Dr. Dylan Fraser, Department of Biology, Faculty of Arts and Sciences

HAVE QUESTIONS? My office hours are 10h00-11h30 Tuesdays, SP 437.03 (Loyola Campus). Please use this time, or just before, during or after each lecture to ask me in person about lecture material or questions about the labs.

CAN'T MAKE AN EXAM OR HAVE ANOTHER EMERGENCY? Email me (dylan.fraser@concordia.ca) or your TA or phone me (tel extension: 8729)

LECTURES 8h45-10h00, Tues/Thurs, HC 155 (Loyola Campus)

LABORATORIES 13h30-17h30, SP 380-5: Lab01 (Tues), Lab02 (Wed), Lab03 (Thurs), Lab04 (Fri); weeks of Jan 6, Jan 20, Feb 3, Feb 17, Mar 9, Mar 23

TAs TBA

COURSE OUTLINE

This course will explore how the anatomy, physiology, life history, ecology and behaviour of vertebrates interact to generate animals that function effectively in their environments, and how different groups of vertebrates have evolved over the past few hundred million years. Major vertebrate groups discussed in the course are cartilaginous fishes, bony fishes, amphibians, reptiles, birds, and mammals. Other special topics on vertebrate biology considered will include the role of ecology in vertebrate speciation, vertebrate adaptations to extreme environments, seasonal migrations, human evolution, as well as conservation issues facing different vertebrate groups worldwide.

GRADING COMPONENTS*	Midterm	30%
	Final exam	35%
	Laboratory	35%
	1) Laboratory exam 1	(15%)
	2) Laboratory exam 2	(15%)
	3) Oral presentation	(5%)

Final grades out of 100 will be assigned a letter according to Concordia University standards: A⁺ = ≥90; A = 85-89; A⁻ = 80-84; B⁺ = 77-79; B = 74-76; B⁻ = 70-73; C⁺ = 67-69; C = 64-66; C⁻ = 60-63; D⁺ = 57-59; D = 54-56; D⁻ = 50-53; F = <50

COURSE TEXT (RECOMMENDED, ***NOT REQUIRED***)

Vertebrate Life, 8th or 9th edition, by Pough FH, Janis CM, Heiser JB (2012, 2013). Published by Pearson Education Inc., San Francisco, CA, USA. Two copies of *Vertebrate Life 8th edition* are available on reserve for temporary loan at the Vanier Library.

Much of the course material (>70%) is adapted from this text book (either the 8th or 9th edition which are very similar), and the lectures repeatedly refer to its Figures and Tables. Because of the amount of information provided in the course, students are strongly encouraged to regularly complement the material covered in lectures with independent, textbook readings. Note that subject material in the textbook that is not covered in lectures will *not* be included on exams. However, subject material in lectures that is not in the textbook will be included on exams.

LECTURE SCHEDULE*

Week 1

Jan 7 Lecture 1 Introduction to course, Introduction to vertebrate biology and structure

Jan 9 Lecture 2 Early vertebrates, jawless to jawed vertebrates

Week 2

Jan 14 Lecture 3 Living in water: physiological and anatomical adjustments

Jan 16 Lecture 4 Cartilaginous fish (Chondrichthyes) biology

Week 3

Jan 21 Lecture 5 Bony fish (Osteichthyes) biology

Jan 23 Lecture 6 Conservation of fishes

Week 4

Jan 28 Lecture 7 Living on land: evolutionary context and physiological adjustments

Jan 30 Lecture 8 Amphibian biology and conservation

Week 5

Feb 4 Lecture 9 Two modes of vertebrate life on land: synapsids vs. sauropsids

Feb 6 Lecture 10 Sauropsid biology: turtles, lizards, snakes, and crocodylians I

Week 6

Feb 11 Lecture 11 Sauropsid biology: turtles, lizards, snakes, and crocodylians II

Feb 13 Lecture 12 Avian biology I

Week 7

Feb 18 **Midterm (covers material up to and including Lecture 11 (no birds!))**

Feb 20 Lecture 13 Avian biology II

Week 8

Feb 25 No lecture (Reading week)

Feb 27 No lecture (Reading week)

Week 9

Mar 3 Lecture 14 Avian biology III

Mar 5 Lecture 15 Mammalian biology I

Week 10

Mar 10 Lecture 16 Mammalian biology II

Mar 12 Lecture 17 Mammalian biology III

Week 11

Mar 17 Lecture 18 Conservation of mammals

Mar 19 Lecture 19 Vertebrate adaptations to extreme environments I

Week 12

Mar 24 Lecture 20 Vertebrate adaptations to extreme environments II

Mar 26 Lecture 21 Ecology and vertebrate speciation

Week 13

Mar 31 Lecture 22 Vertebrate seasonal migrations

Apr 2 Lecture 23 Human evolution

Week 14

Apr 7 Lecture 24 The future of vertebrate diversity and evolution

Apr 9 No class (use it to prepare for the final exam)

**In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change*

ATTENDANCE AND ABSENCE POLICY: Students who miss a lecture are expected to obtain any missed lecture notes from their classmates. No make-up exams will be given without a written medical excuse, and the appropriate person should be contacted (TA): ****Make-up mid-term exams will be taken in the TAs office (TBD) between 11:30am and 1:00pm on Wednesday, Feb 19.** There are no make-up laboratory exams: if you miss your lab exam please contact your TA immediately.

ACADEMIC INTEGRITY AND ACADEMIC CODE OF CONDUCT: This course (like all other courses offered at Concordia University), follows the 'Academic Integrity and the Academic Code of Conduct'. We strongly encourage students to take a moment to read over this code: <http://registrar.concordia.ca/calendar/17/17.10.html>. Vertebrate Biology (BIOL 330) has a zero tolerance policy for any cheating, plagiarism, personation, or falsification of a document as well as any other form of dishonest behaviour related to the obtention of academic gain or the avoidance of evaluative exercises committed by the student.