

VERTEBRATE BIOLOGY (BIOL 330)

3 credits, Winter semester, January – April 2013

Course prerequisites: BIOL225, BIOL226

INSTRUCTOR	Dr. Chiara Gamberi, Department of Biology, Faculty of Arts and Sciences and Institut de Recherches Cliniques de Montreal (IRCM) Email: chiara.gamberi@concordia.ca
LECTURES	10h15-11h30, Tues/Thurs, CC 301 (Loyola Campus)
OFFICE HOURS	11h45-13h00, Tues/Thurs SP 437 (Loyola Campus).
LABORATORIES	Lab01: 13h30-17h30, Wed, SP 380-5: Jan 23, Feb 6, 27, Mar 13, 27, Apr 3 Lab02: 13h30-17h30, Thurs, SP 380-5: Jan 24, Feb 7, 28, Mar 14, 28, Apr 4
TECHNICIAN	Don Beattie; email: d.beattie@concordia.ca
TAs	Matthew Yates; email: yates@dal.ca

COURSE OUTLINE

This course explores vertebrate adaptation to environment through analysis of the contributions of anatomy, physiology, life history, ecology and behavior. Factors responsible for successful evolution are emphasized by comparisons of different aspects of vertebrate development over the past few hundred million years. Special topics include: vertebrate adaptation to extreme environments, seasonal migrations, human evolution, as well as conservation issues for preserving vertebrates worldwide.

GRADING COMPONENTS*	Midterm	25%
	Final exam	40%
	Laboratory	35%
	1) Laboratory exam	(20%)
	2) Oral presentation	(10%)
	3) Participation	(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, 9th edition, by Pough FH, Janis CM, Heiser JB (2009). Published by Pearson Education Inc., San Francisco, CA, USA. Two copies of *Vertebrate Life* 8th and 9th editions will be available on reserve for temporary loan at the Vanier Library.

Much of the course material (>70%) is adapted from this text book, 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 8	Lecture 1	Introduction to course, Introduction to vertebrate biology and structure
Jan 10	Lecture 2	Early vertebrates, jawless to jawed vertebrates

Week 2

Jan 15	Lecture 3	Living in water: physiological and anatomical adjustments
Jan 17	Lecture 4	Cartilaginous fish (Chondrichthyes) biology

Week 3

Jan 22	Lecture 5	Bony fish (Osteichthyes) biology
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Jan 24 Lecture 6	Conservation of fishes
Week 4	
Jan 29 Lecture 7	Living on land: evolutionary context and physiological adjustments
Jan 31 Lecture 8	Amphibian biology and conservation
Week 5	
Feb 5 Lecture 9	Two modes of vertebrate life on land: synapsids vs. sauropsids
Feb 7 Lecture 10	Sauropsid biology: turtles, lizards, snakes, and crocodilians I
Week 6	
Feb 12 Lecture 11	Sauropsid biology: turtles, lizards, snakes, and crocodilians II
Feb 14 Lecture 12a	Avian biology I
Week 7	
Feb 19	No lecture (Reading week)
Feb 21	No lecture (Reading week)
Week 8	
Feb 26 Lecture 13	Midterm (covers material up to <i>and including</i> Lecture 11)
Feb 28 Lecture 12b	Avian biology II
Week 9	
Mar 5 Lecture 13	Avian biology III
Mar 7 Lecture 14	Mammalian biology I
Week 10	
Mar 12 Lecture 15	Mammalian biology II
Mar 14 Lecture 16	Mammalian biology III
Week 11	
Mar 19 Lecture 17	Laboratory exam (covers all lab manual material)
Mar 21 Lecture 18	Conservation of mammals
Week 12	
Mar 26 Lecture 19	Vertebrate adaptations to extreme environments I
Mar 28 Lecture 20	Vertebrate adaptations to extreme environments II
Week 13	
Apr 2 Lecture 21	Ecology and vertebrate speciation
Apr 4	no lecture, Dr. Gamberi is at a research conference
Week 14	
Apr 9 Lecture 22	Vertebrate seasonal migrations
Apr 11 Lecture 23	Human evolution, and the future of vertebrate diversity and evolution

**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 get missed lecture notes from their classmates. No make-up exams will be given without a written medical excuse. **Any make-up mid-term exams will be taken in Dr. Gamberi's office between 11:30am and 1:00pm on Thurs, Feb 28. ***Any make-up laboratory exams will be taken in Dr. Fraser's office between 11:30am and 1:00pm on Thurs, Mar 21.

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.