

# VERTEBRATE BIOLOGY (BIOL 330)

3 credits, Winter semester, January – April 2022

Course prerequisites: BIOL225, BIOL226

**INSTRUCTORS** Noa Davidai, Department of Biology, Faculty of Arts and Sciences;  
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**LECTURES** 8h45-10h00, Tues/Thurs (**Jan. 6-19 online; starting Jan. 20, in-person**)  
**OFFICE HOURS** Thurs 10h30-11h30 or by appointment, SP375.35 (or online)

**LABORATORIES** Lab01: 13h30-17h30 Tue: Jan18; Feb1, 15; Mar8, 22; **Apr5\***  
**SP 380-5 (Loyola)** Lab02: 13h30-17h30 Wed: Jan19; Feb2, 16; Mar9, 23; **Apr6\***  
Lab03: 13h30-17h30 Thu: Jan20; Feb3, 17; Mar10, 24; **Apr7\***  
Lab04: 13h30-17h30 Fri: Jan21; Feb4, 18; Mar11, 25; **Apr8\***  
**\*Lab Exam**

## TECHNICIAN

## TAs

## 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.

<b>GRADING COMPONENTS*</b>	Midterm	20%
	Final exam	30%
	Laboratory	50%
	1) Laboratory exam	(20%)
	2) Oral presentation	(10%)
	3) Lab Reports	(20%)

Final grades out of 100 will be assigned a letter according to Concordia University standards:  
A<sup>+</sup> = ≥90; A = 85-89.99; A<sup>-</sup> = 80-84.99; B<sup>+</sup> = 77-79.99; B = 74-76.99; B<sup>-</sup> = 70-73.99; C<sup>+</sup> = 67-69.99; C = 64-66.99; C<sup>-</sup> = 60-63.99; D<sup>+</sup> = 57-59.99; D = 54-56.99; D<sup>-</sup> = 50-53.99; F = <50

## COURSE TEXT (RECOMMENDED, NOT REQUIRED)

*Vertebrate Life, 10<sup>th</sup> edition*, by Pough FH, Janis CM (2019). Published by Oxford University Press, New York, NY, USA.

Much of the course material (>70%) is adapted from this textbook (older editions were published by Pearson, and are somewhat 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.

## TENTATIVE LECTURE SCHEDULE\*

Jan 6	Lecture 1	Introduction to course, Introduction to vertebrate biology and structure
<b>Week 1</b>		
Jan 11	Lecture 2	Early vertebrates, jawless to jawed vertebrates
Jan 13	Lecture 3	Living in water: physiological and anatomical adjustments
<b>Week 2</b>		
Jan 18	Lecture 4	Cartilaginous fish (Chondrichthyes) biology
<i>Jan 19 last day to withdraw from course with refund (DNE) last day to register for course</i>		
Jan 20	Lecture 5	Bony fish (Osteichthyes) biology
<b>Week 3</b>		
Jan 25	Lecture 6	Conservation of fishes
Jan 27	Lecture 7	Living on land: evolutionary context and physiological adjustments
<b>Week 4</b>		
Feb 1	Lecture 8	Amphibian biology and conservation
Feb 3	Lecture 9	Two modes of vertebrate life on land: synapsids vs. sauropsids
<b>Week 5</b>		
Feb 8	Lecture 10	Sauropsid biology: turtles, lizards, snakes, and crocodilians I
Feb 10	Lecture 11	Sauropsid biology: turtles, lizards, snakes, and crocodilians II
<b>Week 6</b>		
Feb 15	Lecture 12	Avian biology I
Feb 17		<b>Midterm (covers material up to and including Lecture 11)</b>
<b>Week 7</b>		
Feb 22	Lecture 13	Avian biology II
Feb 24	Lecture 14	Avian biology III
<b>Reading Week</b>		
Mar 1/3		No lecture (Reading week)
<b>Week 8</b>		
Mar 8	Lecture 15	Mammalian biology I
Mar 10	Lecture 16	Mammalian biology II
<b>Week 9</b>		
Mar 15	Lecture 17	Mammalian biology III
Mar 17	Lecture 18	Conservation of mammals
<i>Mar 18 Last day to register with the Access Centre for Students with Disabilities and receive exam accommodations for the winter 2021 final examination period.</i>		
<b>Week 10</b>		
<i>Mar 21 last day for academic withdrawal from course (DISC)</i>		
Mar 22	Lecture 19	Vertebrate adaptations to extreme environments I
Apr 24	Lecture 20	Vertebrate adaptations to extreme environments II
<b>Week 11</b>		
Mar 29	Lecture 21	Ecology and vertebrate speciation
Mar 31	Lecture 22	Vertebrate seasonal migrations
<b>Week 12</b>		
Apr 5	Lecture 23	Human evolution
Apr 7	Lecture 24	The future of vertebrate diversity and evolution
<b>Week 13</b>		
Apr 12	Lecture 25	Last day of classes

*In the event of an **online format**, recorded lectures will be available on the course Moodle website before the scheduled lecture time. Class will then be held in the form of Zoom sessions at the scheduled lecture time to discuss the material.*

**The Final Exam will be scheduled in the exam period: 19 April – 1 May.**

The course website is available through your MyConcordia portal. It provides links to recorded lectures, class assignments, lab quizzes and reports, this course outline, suggested readings, some lecture note templates, links to library resources, exam marks when available, etc.

**\*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.

## **Academic Integrity**

### **CONDUCT**

All individuals participating in courses are expected to be professional and constructive throughout the course, including in their communications.

Concordia students are subject to the Code of Rights and Responsibilities which applies both when students are physically and virtually engaged in any University activity, including classes, seminars, meetings, etc.

Students engaged in University activities must respect this Code when engaging with any members of the Concordia community, including faculty, staff, and students, whether such interactions are verbal or in writing, face to face or online/virtual.

Failing to comply with the Code may result in charges and sanctions, as outlined in the Code.

<https://www.concordia.ca/content/dam/common/docs/policies/official-policies/BD-3.pdf>

### **ETHICAL BEHAVIOUR**

**Plagiarism:** The most common offense under the Academic Code of Conduct is plagiarism, which the Code defines as “the presentation of the work of another person as one’s own or without proper acknowledgement.”

This includes material copied word for word from books, journals, Internet sites, professor’s course notes, etc. It refers to material that is paraphrased but closely resembles the original source.

It also includes for example the work of a fellow student, an answer on a quiz, data for a lab report, a paper or assignment completed by another student. It might be a paper purchased from any source.

Plagiarism does not refer to words alone –it can refer to copying images, graphs, tables and ideas. “Presentation” is not limited to written work. It includes oral presentations, computer assignments and artistic works.

Finally, if you translate the work of another person into any other language and do not cite the source, this is also plagiarism.

**In Simple Words: Do not copy, paraphrase or translate anything from anywhere without saying where you obtained it.**

[http://www.concordia.ca/conduct/academic-integrity.html?utm\\_source=redirect&utm\\_campaign=academic-integrity.html](http://www.concordia.ca/conduct/academic-integrity.html?utm_source=redirect&utm_campaign=academic-integrity.html)

*Inform yourself, ignorance is not an excuse*

## **ADDITIONAL RESOURCES**

The university offers a wide range of services that can help you to achieve academic success, you should not hesitate to take advantage of them. Here are a few:

**Academic Advisors** are available in each department to assist students with choosing a program, selecting courses, and other issues. If you are in a biology program you can make an appointment to see an advisor by contacting Ms. Leonie Morris at (514) 848-2424 x3400 or [leonie.morris@concordia.ca](mailto:leonie.morris@concordia.ca).

**Concordia Counselling and Development** offers career services, psychological services, student learning services, etc. (they sometimes have free tutoring sessions for BIOL 201 and other introductory courses): <https://www.concordia.ca/offices/cdev.html>

**Biology Research Guide:** <http://www.concordia.ca/library/guides/biology.html>

**Advocacy and Support Services:**

<http://www.concordia.ca/offices/advocacy.html>

**Student Resources:** <http://www.concordia.ca/conted/resources.html>

**Access Centre for Students with Disabilities:** <https://www.concordia.ca/offices/acsd.html>

**Student Success Centre:** <http://www.concordia.ca/students/success.html>

**Academic Integrity:** <https://www.concordia.ca/students/academic-integrity.html> **Financial Aid and Awards:**

<http://www.concordia.ca/offices/faao.html>

**Health Services:** <http://www.concordia.ca/students/health.html>