Vertebrate Diversity
BIOL 3113

Instructor:
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Lecture:
M/W/F 0930 AM - 10:20 AM
Beverage Arts Centre 141

Lab: There is no lab

Part 1: Course Information

Course Description

In this course we examine the amazing evolution and diversity of the Subphylum Vertebrata looking at representative fish, amphibian, reptile, birds and mammal species. The earliest vertebrates, that lived between 500 and 600 million years ago, were jawless fish, similar to the hagfish species living today. The Subphylum Vertebrata represents over 70,000 living species and hundreds of thousands of extinct species including. The pivotal role of dinosaurs in the evolution of vertebrates will be explored.

Our consideration of diversity and evolution of vertebrates will focus on comparative functional morphology, phylogenetic relationships, evolutionary transitions, and ecological adaptations. Lectures will include hands-on learning and discussion.

Things and dates to note:

First Class – Wednesday, 9 September
No class – 30 September (Truth and Reconciliation Day)
No classes – 12 October to16 October Study Break)
Participation is based on 10 random takings of attendance. If you email me before class, with a reasonable reason, you are not penalized.
No class – 11 November (Remembrance Day)
Last day of class – 9 December

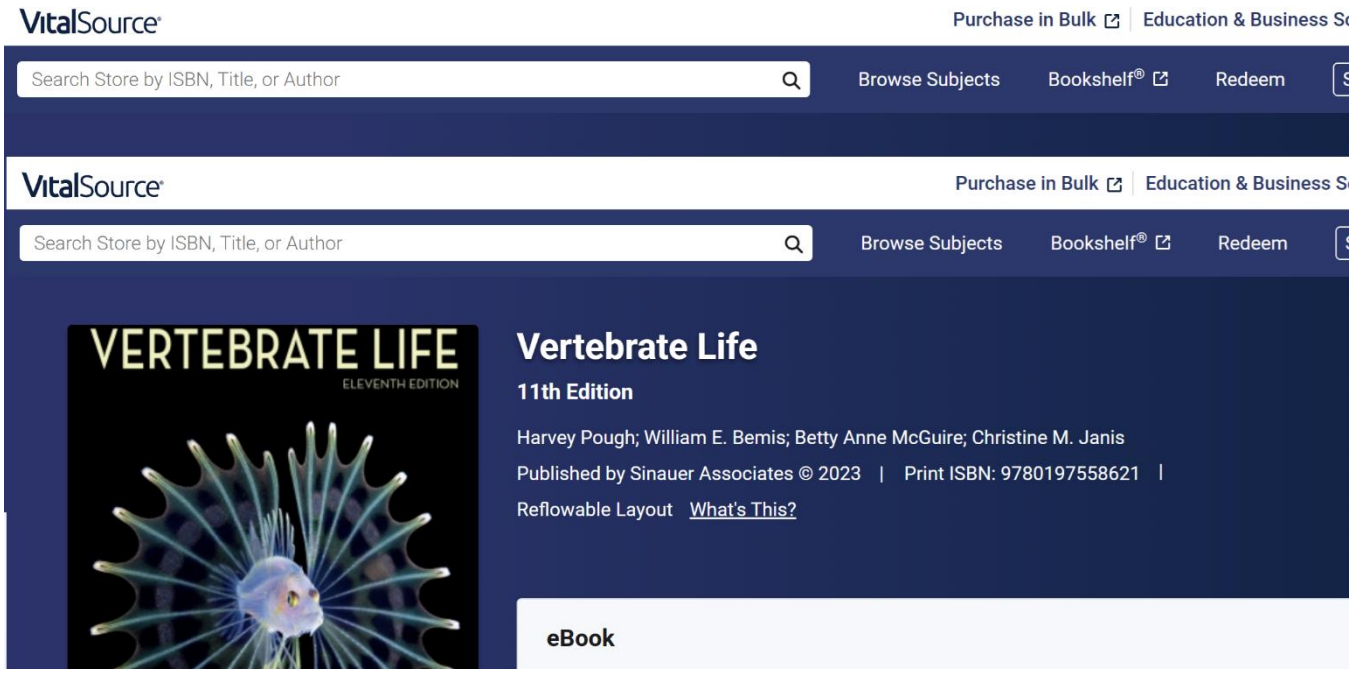
Possible Optional Field Trip: There is a possibility of an optional field trip to the Blue Beach Fossil Museum, if interest and funds are there. This would have to be on a Saturday. This will be discussed in class.

Course Materials & Requirements

Textbook : Vertebrate Life - 11th Edition - Harvey Pough et al.- Published by Sinauer Associates

eBook, or hardcopy is available for purchase at the bookstore, and other locations. Cost: 263.00 for hardcover, digital ranges from 95-146.

There will be one, or two copies, on reserve at the library for short-term loan.



Lectures Resources:

Course Structure

This course will consist of regular in person lectures on Mondays and Wednesdays. On Fridays, we will meet in the Wildlife Museum in the Biology Building for more hands-on lectures, discussion and

demonstration sessions. MUSEUM FRIDAYS!

Student Learning Outcomes

How to Meet the Learning Outcome

To succeed in this course, you should come to class, read the read the assigned readings posted on MOODLE, participate in discussions and be actively engaged in preparing your presentation, assignments and tests.
The BIOL 3113 Moodle page is:
https://moodle.acadiau.ca/course/view.php?id=41045

Part 2: Topic Outline

The instructor reserves the right to amend the above course plan with reasonable notice, and in consultation with the class. The exact number of topics covered may vary depending upon how quickly we cover the material. Please see the separate course topics list posted on Moodle.

The lectures will follow the general outline of the chapters in the text. Note that only a portion of the text will be covered, given the length and depth of the text, too much for a single half course.

Part 3: Assessment and Grading

Evaluation	Percentage	Date
Test 1	20	23 October
Poster Assignment	20	7 – 9 December
Participation	10	10 random attendances
Notebook – Museum Fridays	20	2 December
Test 2	30	4 December
TOTAL	100	

You will be assessed through 2 tests, a poster session, notebook and attendance.
The lecture test will be based on lecture material, any guest lectures required readings and assigned articles covered up to that point.

Part 4: Course Policies

Students are expected to attend all lectures. Students who come to class do better on tests, assignments and the course overall.

You are, of course, permitted to use laptops or tablets to take notes in lecture, please limit their use to classroom material only. Using them for other purposes (i.e. social media) will negatively impact your ability to learn, and it is distracting to myself and others. Please don't do it.

PowerPoint slides for each lecture are posted on MOODLE before class download or print off slides, take supplementary notes during lecture research has shown that students who take notes by hand perform significantly better in situations that evaluate their ability to retain information

If you are not feeling well, please send me an email to let me know and stay home!

When using electronic devices during lectures, limit their use to classroom material only using these devices for other purposes (e.g., social media) will negatively impact your ability to learn, and is rude and disrespectful to other students.

Part 5: University Policies

University policies are available in the Acadia University Academic Calendar or through the Registrar's website: https://registrar.acadiau.ca/welcometotheregistrarsoffice.html

Equity, Diversity and Inclusion

In this course, we are committed to fostering an inclusive and equitable learning environment where the principles of human rights and social justice are paramount. We recognize and respect the diverse backgrounds, identities, and experiences of all students. Our collective goal is to create a space where every individual feels valued, heard, and supported.
All students are encouraged to contribute to and uphold an atmosphere of mutual respect and empathy. Discrimination, harassment, or any form of intolerance will not be tolerated. If you have any concerns or require accommodations to ensure your full participation in this course, please do not hesitate to reach out. Together, let's work towards understanding and advancing human rights and equity, both within and beyond the classroom.

Acadia's Human Rights and Equity Office is responsible for the management and implementation of Acadia's Policy Against Harassment and Discrimination. This Policy is underpinned by a commitment to deconstructing the problematic structures of systemic racism and discrimination within the University Community. Acadia upholds a commitment to fostering a culture within the University Community that is welcoming and reflective of the diverse individuals that comprise this community and to fostering cultural safety, anti-oppression and anti-racism within the University Community, making it our goal to achieve a culture where our diversity is our strength.

Inform Your Instructor of Accommodations
Acadia University is dedicated to improving access to campus life for all students with disabilities. While we attempt to ensure that all courses are accessible, we recognize that there are barriers that need to be addressed on an individual basis. Students who require accommodations to complete coursework or otherwise fully participate in class should contact Accessible Learning Services directly as soon as possible. https://www2.acadiau.ca/student-life/accessiblelearning.html

Acadia's Policy for Students with Disabilities can be found here:
https://senate.acadiau.ca/tl_files/sites/senate/Senate%20Policies/Jan%202015%20Revised%20Policy%20Regarding%20Support%20for%20Students%20with%20Disabilities.pdf

The Use of Animals in Teaching and Research
The use of animals in teaching and research at Acadia University is done in accordance with guidelines on the care and use of animals published by the Canadian Council on Animal Care (CCAC). For more information on the CCAC, please visit their website at http://www.ccac.ca

Share the Air Policy

In consideration of the difficulties that exposure to scented products causes individuals with sensitivities and allergies, all students, faculty, staff, employees of any companies working on university property, visitors, and guests of Acadia University, or of members of the University community are asked to refrain from wearing scented personal care products such as perfumes / aftershave, lotions, hair spray and deodorant. In addition, users of tobacco and cannabis are asked to be aware that odours associated with product use may impact individuals with sensitivities and allergies. Acadia University in consultation with its contracted cleaning staff, have agreed to use products that do not leave residual odors that may cause difficulties for individuals with sensitivities and allergies. https://hr.acadiau.ca/employment/university-policies.html

Commitment to Integrity
It is standard practice in Biology to check exams and assignments for cheating and plagiarism. Cheating in the class and/or lab, including plagiarism, will not be tolerated. Please read the appropriate sections of the current Acadia University Academic Calendar: https://registrar.acadiau.ca/AcademicCalendars.html

Information on copy-write and course content from Acadia University is available through the Vaughan Memorial Library: http://libguides.acadiau.ca/c.php?g=433650&p=5027078

The spoken and written course content (including the syllabus, handouts, lectures, presentations, labs, assignments, quizzes, tests, and exams) are the intellectual property of the instructor and may only be copied for personal use. Sharing these materials or uploading them where they may be accessed by others is a violation of copyright. If you wish to make audio, video, or photographic recordings in class, you must first obtain the consent of the instructor and of any other persons (e.g., guest speakers, other students) who may be captured in such recordings. In the case of personal use by students with disabilities, the instructor's consent shall not be unreasonably withheld.

Artificial Intelligence. Use of artificial intelligence tools by students to assist with their learning is allowed only if: prior permission has been given by the course professor/instructor, and the student properly credits/cites how the AI technology was used in their work.

AI must be used in an ethical and responsible manner as a positive learning tool. AI may not be used in ways that violate Acadia's Academic Integrity Policy. Students are reminded that plagiarism, or other forms of cheating, are both types of academic dishonesty.

Part 6: Program Learning Outcomes

Foundations of knowledge		**Course specific examples**	**Proficiency** 1-Introduction 2-Reinforcement 3-Proficient
Scientific method, inquiry and hypothesis testing	Find, understand and apply information from the literature; understand how to use the scientific method to examine problems from different perspectives	Review and critique methods used to study of vertebrates based on the current literature	2

Historical concepts and contributions by important figures	Explain foundational concepts in biology, Two-eyed Seeing, and ethical implications of scientific discoveries	In lecture we will discuss Mi'kmaw names, colonial bias in naming organisms, race and gender issue in evolution research	2
Biodiversity and ecology	Understand the genetic, taxonomic and ecosystem levels of biodiversity;	Exploration of the diversity of vertebrates including variation in anatomy, physiology, behaviour, and ecology	3
Genetics and evolution	Understand the chemical basis of heredity, genetics and genomics; integrate concepts across disciplines to understand evolution	Review of the current phylogenetic understanding including how modern molecular methods have altered our understanding of vertebrate evolution and classification.	3
Human and environmental health	Understand form and function in health and disease within a One Health framework, integrating human and environmental health	Discuss threats to birds, habitat loss, disease, invasive species, climate change etc.	2
Lab and field skills			
Experimental design	Gain experience in applying the scientific method	The scientific method is reviewed and used in light of course content	2
Safety	Work safely and productively in lab and field settings	Gloves and eye protection required when handling specimens	1
Lab skills	Gain experience with basic and advanced lab techniques and understand their application in research, health science and industry	No lab, but consider safe use of specimens in museum environment and research	1
Field skills	Gain experience in basic and advanced field skills and understand their application in ecology, conservation biology and environmental change	Potential field trip and museum activities and discussions regarding environmental issues and conservation action	1
Data acquisition, analysis and interpretations	Collect data, present results both qualitatively and quantitatively, and interpret outcomes in light of the literature	Collect and analyze data related to specimens in the museum	1
Statistical analysis	Use R and or other programs to analyze biological data	Review and critique statistics and methodology of poster session papers	1
Professional skills			
Ethical practices	Demonstrate ethical conduct, apply principles of academic integrity and understand the principles of EDI in science	Discussions and lecture material on biases in science, especially research in evolution	2
Collaboration and group work	Work effectively in groups within and across disciplines	Group discussions and activities in the museum	2
Critical thinking	Analyze and evaluate information to make science-based decisions	Discuss evidence that supports ideas and conclusions in science	2
Computer proficiency	Use common and discipline- specific software	Poster preparation	2
Scientific communication	Communicate science effectively to both scientific and general audiences	Notebooks, Poster assignment	2