Western Science

Department of Biology

Biology 3484B – Patterns in the Diversity of Life Course Outline

1. Course Information

This course considers the large-scale patterns in the Earth's biota: patterns in life's diversification and extinction, changing the biota through time; patterns in the form and functioning of organisms, reflected in biological classification; patterns in the global distribution of life's lineages, and in their major responses to Earth's diverse climate.

We will discuss biodiversity, species concepts, speciation and extinction, systematics, survey the biodiversity on earth, and examine patterns in diversity that have emerged from convergent evolution and historical biogeography.

List of Prerequisites

Registration in third year or later, plus 1.0 credits from Biology 2290A/B, 2382 A/B, 2483A/B, 2581 A/B, or 2601 A/B. I strongly recommend that you have completed Biology 2483 before registering in this class.

Unless you have either the requisites for this course or written special permission from your Dean's Designate (Department/Program Counsellors and Science Academic Advisors) to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

2. Instructor Information

Instructor: Benjamin Souriol, bsouriol@uwo.ca,

Class hours: Tuesday and Thursday, 12:30-1:30pm,

Tutorial hours:
Section 002: Tuesday 3:30-5:30pm
Section 003: Tuesday 3:30-5:30pm
Section 004: Tuesday 3:30-5:30pm
Section 005: Thursday 9:30-11:30am
Section 006: Thursday 9:30-11:30am

Office hours: Tuesday and Thursday, 1:30-2:30pm. Please email to ensure I have a room available for meetings.

Teaching assistants: TBA. Please direct all your tutorial-related questions to your assigned TA.

3. Course Syllabus, Schedule, Delivery Mode

Students should check OWL Brightspace (https://westernu.brightspace.com/d2l/login) on a regular basis for news and updates. This is the primary method by which information will be disseminated to all students in the class.

I encourage students to use the Forums on the OWL site for asking questions that other students might want to ask. For example, if you have a question about an assignment's format or due date, please post it to the forum so that the question needs to be answered only once. If you wish to schedule a meeting with me outside of my office hours, please send me an email and include the reason you would like the meeting within the body of the message.

Classes begin: January 6, 2025
Spring Reading Week: February 17 – 21, 2025
Classes end: April 4, 2025
Exam period: April 7 – 30, 2025

Contingency plan

Although the intent is for this course to be delivered in person, should any university-declared emergency require some or all of the course to be delivered online, either synchronously or asynchronously, the course will adapt accordingly. The grading scheme will **not** change. Any assessments affected will be conducted online as determined by the course instructor.

Goals of the Course

Biodiversity is under threat worldwide. In this course, we will discuss the meaning and the importance of biodiversity, broadly describe many of Earth's taxa, and discuss how biodiversity has arisen from the sum of the processes of speciation and extinction.

1) *To teach you the processes that have led to the biodiversity that exists today*. We will examine how biodiversity is defined and how it has developed through processes of speciation and extinction. We will consider how convergent evolution and historical biogeography has led to patterns in biodiversity that we see today.
2) *To develop an understanding of how biodiversity principles are taught to the public.*
3) *To improve your research and presentation skills.* An oral presentation project will require you to investigate a listed species and present your findings to your tutorial group.

Learning outcomes

Further to the goals of the course above, outcomes for each lecture will be released with the lecture. By the end of this course, you should be able to:

1. Define biodiversity, explain species concepts, and understand systematics.
2. Describe processes of speciation and extinction.
3. Describe the biodiversity seen on earth.
4. Explain how selection and historical processes have led to biogeographical patterns seen on Earth today.
5. Describe ongoing threats to biodiversity and offer solutions.

4. Course Materials

There is no required textbook for this course, but readings of recently-published research may be assigned throughout the term that will be testable. Naturalist photographers and illustrators are often under-appreciated. Out of respect for their work, I give credit to the person responsible for the figures used in lecture. I encourage you to do the same in your oral presentations. Unless you have be given explicit permission by the content creator to share images, do not post them to the internet.

Students are responsible for checking the course OWL site (http://owl.uwo.ca) on a regular basis for news and updates. This is the primary method by which information will be disseminated to all students in the class.
All course material will be posted to OWL: http://owl.uwo.ca.

If students need assistance with the course OWL site, they can seek support on the OWL Help page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

5. Methods of Evaluation

Evaluations

Oral Presentation	Assigned in Lecture 1	20%
Biodiversity Gallery Assignment	Assigned in Lecture 12	10%
iNaturalist Walk Assignment	Assigned in Lecture 20	10%
Midterm	February 25, 12:30pm	20%
Final Exam	To be scheduled by the Registrar's Office	40%

Tutorials

Tutorials will be used to introduce you to the three assignments (one oral presentation, and two writing assignments). Details of these assignments will be presented in tutorial and posted to the OWL website. Students are expected to follow the posted guidelines.

Note that attendance to all tutorials will be recorded. During presentations from your peers, you will be expected to be attentive and respectful. If your TA decides that you were disruptive or disrespectful during another student's presentation, you will be assigned a mark of zero for your attendance to that tutorial.

Midterm and exam

There is one midterm, on Tuesday, February 25th at 12:30pm. The classroom location will be announced in class and on the course website prior to the test date. The midterm is worth 20% of your final mark. The final exam will be scheduled by the Registrar's Office during the April exam period. The final exam is worth 40% of your final mark. Any material discussed in class, in tutorial, or assigned as readings are testable. The tests will include multiple choice, short answer, and/or essay questions. No electronic aids are allowed. Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

Late assignments

Assignments are due at the beginning of class on the due date. Assignments submitted after that time will be penalized 10% per day, and marks more than one week late will receive a mark of 0.

Lecture and assignment schedule

The lecture topics presented below may change as the semester develops. Please refer to the tutorial schedule further below.

Date	Lecture	Topic
January 7, 2025	1	Introduction to Biodiversity
January 9, 2025	2	Defining Biodiversity
January 14, 2025	3	Speciation
January 16, 2025	4	Extinction
January 21, 2025	5	Prokaryotes and Early Life on Earth
January 23, 2025	6	Eukaryote Evolution
January 28, 2025	7	Colonization of Land
January 30, 2025	8	Cambrian Explosion
February 4, 2025	9	Latitudinal Gradients in Biogeography
February 6, 2025	10	Threats to Biodiversity
February 11, 2025	11	Biodiversity Crisis and Solutions
February 13, 2025	12	Midterm Review & Biodiversity Gallery
February 18, 2025	-	Reading Week
February 20, 2025	-	Reading Week
February 25, 2025	-	Midterm Date
February 27, 2025	13	Plants
March 4, 2025	14	Fungi
March 6, 2025	15	Marine Invertebrates
March 11, 2025	16	Fishes
March 13, 2025	17	Amphibians & Reptiles
March 18, 2025	18	Birds
March 20, 2025	19	Insects
March 25, 2025	20	Mammals
March 27, 2025	21	Creepy Crawlers
April 1, 2025	22	Normalizing Diversity of Life
April 3, 2025	23	Review for Final

Tutorial schedule

Note that some weeks have no tutorial.

Date	Tutorial #	Description
Jan 14-16	1	No Tutorial
Jan 21-23	2	No Tutorial
Jan 28-30	3	No Tutorial
Feb 4-6	4	No Tutorial
Feb 11-13	5	No Tutorial
Feb 18-20	-	No Tutorial (Reading Week)
Feb 25-27	6	No Tutorial
Mar 4-6	7	Biodiversity Gallery Visit
Mar 11-13	8	Biodiversity Gallery Visit
Mar 18-20	9	No Tutorial
Mar 25-27	10	Guided iNaturalist Walk & Submissions
April 1-3	11	Guided iNaturalist Walk & Submissions

6. Student Absences

Assessments worth 10% or more of the overall course grade:

For work totalling 10% or more of the final course grade, you must provide valid medical or supporting documentation to the Academic Advising Office of your Faculty of Registration as soon as possible. For further information, please consult the University's medical illness policy at

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration.pdf.

The Student Medical Certificate is available at

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf.

Absences from Final Examinations

If you miss the Final Exam, please contact the Academic Advising office of your Faculty of Registration as soon as you are able to do so. They will assess your eligibility to write the Special Examination (the name given by the University to a makeup Final Exam).

You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation" (e.g., more than 2 exams in 23-hour period, more than 3 exams in a 47-hour period).

If a student fails to write a scheduled Special Examination, the date of the next Special Examination (if granted) normally will be the scheduled date for the final exam the next time this course is offered. The maximum course load for that term will be reduced by the credit of the course(s) for which the final examination has been deferred. See the Academic Calendar for details (under Special Examinations).

Academic Considerations for Absences

To view the updated policies on academic considerations or if you have any questions regarding the steps for submitting an academic consideration, please view the updated policy at:
https://www.uwo.ca/sci/advising/procedures/academic_consideration_for_absences/index.html

7. Accommodation and Accessibility

Religious Accommodation
When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request an accommodation for their absence in writing at least two weeks prior to the holiday to the course instructor and/or the Academic Advising office of their Faculty of Registration. Please visit the Diversity Calendars posted on our university's EDID website for the recognized religious holidays:

https://www.edi.uwo.ca.

Accommodation Policies
Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic Accommodation_disabilities.pdf.

8. Academic Policies

The website for Registrarial Services is https://www.registrar.uwo.ca/.

In accordance with policy,

https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf,

the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at their official university address is attended to in a timely manner.

No use of electronic device is permitted in the final exam.

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (http://www.turnitin.com).

Computer-marked multiple-choice tests and exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

9. Support Services

Please visit the Science & Basic Medical Sciences Academic Advising webpage for information on adding/dropping courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters: https://www.uwo.ca/sci/counselling/.

Students who are in emotional/mental distress should refer to Mental Health@Western (https://uwo.ca/health/) for a complete list of options about how to obtain help.

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at

https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Accessible Education at

http://academicsupport.uwo.ca/accessible_education/index.html

if you have any questions regarding accommodations.

Learning-skills counsellors at Learning Development and Success (https://learning.uwo.ca) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being: https://www.uwo.ca/se/digital/.

Additional student-run support services are offered by the USC, https://westernusc.ca/services/.