

BIOLOGY 3444A Course Outline

1. Course Information

List of Prerequisites

- Biology 2483
- Biology 2581
- Recommended: Biology 3466

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

Dr. Emma Churchman (she/her)

Teaching Assistant:

Zach Balzer

Students must use their Western (@uwo.ca) email addresses when contacting their instructor. Please include "BIO3444" in the subject line. Other email address or forms of online contact will not be responded to. If you have an urgent question that requires my attention and is not answered in the syllabus, please direct it to my email. My office hours are by appointment only and will be held via Zoom.

I will answer questions about course content up until 24 hours prior to exams. Your TA will not have office hours. Any questions pertaining to grades should be directed to the person who graded the assignment. Please be aware that questions regarding grades should be sent via email, and at least 24 hours after the grades have been released.

3. Course Syllabus, Schedule, Delivery Mode

An introduction to the use of molecular tools, particularly genetic tools, in addressing both basic and applied questions in ecological research. We will consider the use of molecular tools for addressing questions in population, behavioural, community, and ecosystem ecology. We will also consider various areas of practical application such as species conservation, studies of the origin and spread of invasive species, wildlife forensics, and agriculture and fisheries. Lectures and student-led seminars will develop basic knowledge and theory underlying molecular ecology, and will present recent case studies from the primary literature.

Course learning objectives: Upon successful completion of the course, students should be able to:

- Identify, describe, and compare different types of molecular markers commonly used in molecular ecology
- Understand and describe, by drawing on basic principles of inheritance and population genetics, how molecular markers can be applied to address a broad variety of ecological questions
- Read and critically evaluate primary research articles in the field of molecular ecology
- Articulate a research question and associated hypotheses and predictions, in the field of molecular ecology, and plan/describe suitable methods to answer the question

4. Course Materials

Required: Freeland, J.R. 2019. *Molecular Ecology* (3rd edition; available via BookStores).

* Please note there are substantial differences between editions, and so buying earlier editions is not recommended.

All lecture and tutorial material will be posted to OWL: <https://westernu.brightspace.com/>

Students are responsible for checking the course OWL site (<https://westernu.brightspace.com/>) regularly for news and updates. This is the primary method by which information will be disseminated to all students in the class. Lecture outlines will be posted twice weekly prior to class. These outlines are meant to serve as a guide-only and should be supplemented in class with your own notes during lecture.

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

Intellectual Property and Course Conduct Policy in the use of Lecture, Tutorial and other materials: All materials that are posted for and/or presented to you are for your individual use only. Course material, assignments, and exams are the intellectual property of your instructor that are shared with the student and the University. To post, share, or sell any of this content is a breach of intellectual property. Visual recording is not allowed, however audio recording is permitted for personal use only.

5. Methods of Evaluation

Grading Scheme and Assessment Dates

The overall course grade will be calculated as listed below:

Tutorial Assignments	15%	(3 assignments worth 5% each)
Midterm Test	20%	(October 8 th , in-class)
Research Proposal Annotated Literature Review	15%	(September 27 th by 11:59pm)
Research Proposal	15%	(November 14 th by 11:59pm – IN PAIRS)
Peer Review	5%	(November 28 th by 11:59pm)
Final Exam	30%	(TBD, scheduled by the OOR)

At the end of the term you will complete several assignments related to a proposed research project in the field of molecular ecology. The final proposal will be completed in pairs, and students are free to work on any question or study system of their choice, as long as the topic fits within the scope of molecular ecology. Your TA must approve your topic choice.

The midterm test will be written during class time. It will cover all material presented during lectures and tutorials (up to, and including, October 3rd), and in the assigned reading. The test will be in person, but you will be writing on your laptop. Phones are not permitted. The use of generative-AI or any internet/online resources are strictly prohibited.

A final test will be written during the exam period. It will be comprehensive, and cover all material presented during lectures, tutorials, and assigned readings for the entire term.

Tutorial sessions will involve instruction pertaining to the research proposal as well as three mini assignments (5% each) to be completed during class time. You will be given time to work with your partner on your research proposal.

General information about missed coursework

Students must familiarize themselves with the *University Policy on Academic Consideration – Undergraduate Students in First Entry Programs* posted on the Academic Calendar:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration_Sep24.pdf,

This policy does not apply to requests for Academic Consideration submitted for **attempted or completed work**, whether online or in person.

The policy also does not apply to students experiencing longer-term impacts on their academic responsibilities. These students should consult [Accessible Education](#).

For procedures on how to submit Academic Consideration requests, please see the information posted on the Office of the Registrar's webpage: https://registrar.uwo.ca/academics/academic_considerations/
All requests for Academic Consideration must be made within 48 hours after the assessment date or submission deadline.

All Academic Consideration requests must include supporting documentation; however, recognizing that formal documentation may not be available in some extenuating circumstances, the policy allows students to make one Academic Consideration request **without supporting documentation** in this course. However, the following assessments are excluded from this, and therefore always require formal supporting documentation:

- Final examinations scheduled during official examination periods (Defined by policy)
- Research Proposal (Designated by the instructor as the one assessment that always requires documentation when requesting Academic Consideration)

When a student *mistakenly* submits their one allowed Academic Consideration request **without supporting documentation** for the assessments listed above or those in the **Coursework with Assessment Flexibility** section below, the request cannot be recalled and reapplied. This privilege is forfeited.

Evaluation Scheme for Missed Assessments

Tutorial assignments (15%): This course has 3 mini assignments, each of which are worth 5% for a total of 15%. These assignments are due during tutorial and will be completed during class time using the Brightspace Quiz system. If you are unable to attend a tutorial with a mini-assignment, you must submit for academic consideration to accommodate the missed assignment. If you receive accommodation, the weight of the first missed assignment will be shifted to the literature review. If you receive accommodation for a second tutorial assignment, the weight will shift to the upcoming exam.

Midterm Test (20%): This assessment will occur in class. If academic consideration is granted to miss this assessment, one makeup midterm test will be provided on October 10th. If you miss both the midterm and its makeup (at least one of which must receive academic consideration with supporting documentation), the grade will be re-weighted to your final exam.

Research Proposal Literature Review (15%): Failure to submit the research proposal on time, without an approved academic accommodation, will result in a grade of zero for the assignment. A grace period of 48 hours after the deadline is provided, during which submissions can be made without a late penalty. Any submission beyond this 48-hour period requires formal approval for an extension through academic consideration, supported by documentation from Academic Advisors. If you require more than 48 hours after the deadline to submit and requesting accommodation, please contact your TA and instructor immediately to determine a new due date. To be eligible for peer review, the research proposal must be submitted within 72 hours of the original deadline. Proposals submitted late will be assessed fully by the instructors. Completion of the research proposal is mandatory to pass the course.

A note on collaborative writing: This assignment is a collaborative effort, completed in pairs. Your partner relies on your full participation and timely submission of all components. It is imperative that you engage actively and contribute meaningfully to the project to meet the set deadline. Prior to submitting your proposal, you must complete and submit the collaboration evaluation survey. This feedback will be factored into the final proposal grade, and it is important to note that both partners may receive different grades based on their individual contributions and collaboration efforts.

Research Proposal (15%): There is a 48-hour period after the deadline with no late penalty, as detailed below in assessment flexibility. Accommodation for late submission beyond 48 hours post-deadline requires approval of

academic consideration with supporting documentation by Academic Advisors. If an extended deadline is supported, the student must submit their outline within 24 hours of the end of their extension period. Late research proposals cannot be submitted after grades/feedback have been returned. Students must complete the research proposal to pass the course.

Peer Review (5%): Associated with the research proposal is a peer-review. In this part of the assignment, you will be asked to read over an anonymized proposal submitted by a classmate. You will be assigned a proposal during a tutorial that covers peer-review and evaluation. You will have the duration of the following tutorial to work on your review, with submission of your review due 72 hours after. You will only be permitted to complete the proposal peer-review if you submit a copy of your proposal on time. Part of your mark on the proposal will be based on your peers' review.

Final Exam (30%): Accommodation for the final exam as scheduled by the OOR always requires formal supporting documentation. Students who miss the final exam and are granted academic consideration will write the department scheduled makeup final exam. When a student misses both the Final Exam and make-up Final, and their Academic Consideration has been granted, they will be allowed to write the Special Examination (the name given by the University to a makeup Final Exam). See the Academic Calendar for details (under [Special Examinations](#)), especially for those who miss multiple final exams within one examination period. The final exam can be worth a maximum of 65% of the student's final grade.

Essential Learning Requirements

Even when Academic Considerations are granted for missed coursework, the following are deemed essential to earn a passing grade.

- completion of the research proposal

In lieu of extenuating circumstances and a student is not able to complete the research proposal, the student will have the opportunity to submit the proposal with the next offering of the course if academic accommodation is granted with supporting documentation. In this case, the student will receive a grade of Incomplete (INC) and their maximum course load may be reduced during the term in which they complete their coursework.

Coursework with Assessment Flexibility

By policy, instructors may deny Academic Consideration requests for the following assessments with built-in flexibility:

Deadline with a No-Late-Penalty Period Assignments. Students are expected to submit both the research outline and the research proposal by their respective deadlines. Should extenuating circumstances arise, students do not need to request Academic Consideration, and they are permitted to submit their assessment up to 48 hours past the deadline without a late penalty. Should students submit their assessment beyond 48 hours past the deadline without accommodation, a 10% deduction will apply at the end of the 48 hours period, with an additional 10% per day. Academic Consideration requests may be granted only for extenuating circumstances that started before the deadline and lasted longer than the No-Late-Penalty Period (48 hours).

6. Land Acknowledgement

We acknowledge that Western University is located on the traditional lands of the Anishinaabek, Haudenosaunee, Lūnaapéewak and Chonnonton peoples, on lands connected with the London Township and Sombra Treaties of 1796 and the Dish with One Spoon Covenant Wampum. With this, we respect the longstanding relationships that Indigenous Nations have to this land, as they are the original caretakers.

7. Additional Statements

Religious Accommodation

When 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 to the course instructor and/or the Academic

Advising office of their Faculty of Registration. This notice should be made as early as possible but not later than two weeks prior to the writing or the examination (or one week prior to the writing of the test).

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.

Academic Policies

The website for Registrar 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.

Electronic devices are not permitted on tests or exams with the exception of non-programmable electronic calculators. Programmable calculators that allow users to write/store programs or information are not permitted.

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>).

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/>.