

## **Biology 3467A: Evolution and Reproduction Course Outline Fall 2024**

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## **1. Land acknowledgment**

We acknowledge that Western University is located on the traditional lands of the Anishinaabek, Haudenosaunee, Lūnaapéewak and Attawandaron peoples, on lands connected with the London Township and Sombra Treaties of 1796 and the Dish with One Spoon Covenant Wampum. This land continues to be home to diverse Indigenous peoples (e.g. First Nations, Métis and Inuit) whom we recognize as contemporary stewards of the land and vital contributors of our society.

## **2. Instructor Information**

<b>Instructors</b>	<b>Email</b>	<b>Office</b>	<b>Office Hours</b>
Prof: Dr. Amanda Moehring	amoehrin@uwo.ca	WSC 307	TBA
TA: Evelyn Petro	epetro@uwo.ca		

**Emails: Students must put “BIO3467” in the subject line when contacting their instructors.**

Sign your email with your first and last name so it is clear who it is from. Emails are answered within 2 business days, with the limitations below:

- Questions about course material should be posted on the forum or brought up in class so that other students can benefit from the answer.
- We will not respond to questions that can be answered in the syllabus. Being able to find information yourself is an important soft-skill and an employable outcome.
- All requests for accommodation must be handled through the Academic Counseling Office.

## **3. Course Information, Schedule, Delivery Mode**

The goal of this course is both to introduce evolutionary concepts using reproduction as the context, as well as to introduce concepts related to reproduction. Topics include evolution of various forms of reproduction, sex, the cost and consequences of different mating systems, sexual antagonism, egg-sperm co-evolution, reproductive isolation between species. Current understanding of the

genetic basis of evolutionary aspects of reproduction will also be discussed. A solid understanding of genetics is beneficial for success in this course.

**Prerequisite:** Minimum of 60% in Bio2581.

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.

**Schedule:**

[See Syllabus on OWL](#)

**Sample topics include:**

Reproductive isolation between species	Sexual selection - theories
Benefits and consequences of sex	Why sex evolved
Cryptic female choice	Parental care
Male-female co-evolution and antagonism	Egg-sperm interactions
Reproductive organ interactions	Mating strategies
Benefits and consequences of anisogamy	Types of reproduction

**Learning Outcomes:**

- Students will develop a comprehensive understanding of the causes and consequences of sexual selection from an evolutionary perspective.
- Students will be able to identify sexually selected traits and evaluate the potential selective pressures underlying their evolution.
- In tutorial, students will be able to research, synthesize, and create an engaging presentation that has both the necessary breadth and depth to cover a reproduction-related topic from a primary research article.
- Students will be able to research, devise, and write an engaging written essay that has both the necessary breadth and depth to explain a gene's or mechanism's significance in the evolution of reproductive functions.
- Students will be able to distil key concepts from assigned readings and lectures, and communicate this information via their answers on in-class quizzes.

## 4. Course Materials

There is no required textbook to purchase for the course. Students are required to have a laptop computer sufficient to access materials on OWL and to create a powerpoint-style presentation.

All course material will be given in class or posted to OWL (<http://owl.uwo.ca>). Students are responsible for checking OWL on a regular basis for material and updates.

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

The overall course grade will be calculated as listed below:

Quizzes	40%
Tutorial presentation	20%
Tutorial annotations, attendance, and feedback	15%
Final written assignment	25%

Annotations and the tutorial presentation are MANDATORY. Students must also complete at least 8 (of 12) quizzes. Failure to meet these requirements will result in a maximum final grade of 45%.

Written assignments and annotations will be submitted to Turnitin (statement in policies below). After an assessment is returned, students should wait 48 hours to digest feedback before contacting their evaluator. However, to ensure a timely response, please reach out within 7 days. If you wish to contest a grade, you must provide justification for a grade change in writing to the course instructor.

1. In-class quizzes (40%):

Your attendance, participation, and comprehension in Biology 3467 will be recorded through approximately three to five quiz questions during lecture, approximately once per week. Quizzes will take place on OWL or on paper and will generally take 5-10 minutes. If doing the quiz on OWL, students must take the quiz on a screen large enough to be highly visible to the proctor (eg, not a phone). This component has flexible completion, with a student's lowest three quiz scores (including missed quizzes) dropped. This buffer is meant to provide flexibility to students in case of illness or other important matters. Students with accommodated reasons to miss more than three quizzes will need to request accommodation via Academic Counselling. In these cases, the mark will be calculated out of the number of quizzes adjusted for accommodation. Students must complete at least 8 quizzes in order to pass the course. Students caught cheating on a quiz will be reported as an academic offense and will at a minimum not be able to achieve greater than 50% for this component of the course.

2. Tutorial Presentations (20%):

This component is mandatory. Students will be expected to deliver a 15-18-minute lecture, plus ~5 minutes question period (20-23 minutes total) on an assigned primary research article. The presentation will first discuss background information that establishes the scientific rationale for the given study, then the methods and results. The presentation will then provide an overview of the results of at least two directly-related research papers that has occurred since the assigned article was published. Presentations will be done as groups of 2-3. Groups and presentation dates will be assigned during the first week of class; articles will be assigned to each group approximately two weeks before their assigned presentation date. Two groups will present per week. More information can be found on OWL.

If you need to request Academic Consideration to miss your Tutorial presentation, it will require formal supporting documentation.

3. Tutorial Annotations, Attendance and Feedback (15%):

Annotations (6%): This component is mandatory. Late tutorial annotations will receive a score of 0%. Annotations no more than 5 days late will still count as meeting this required component, even though they receive a grade of 0%. Annotations 6 days or more late will not count as meeting this mandatory component. **Annotations will be due at 11:55PM each Tuesday on weeks there are tutorials.**

*Non-presenters:* All students who are not presenting that week are expected to submit one written annotation on the primary research articles that groups will present. Of the two articles being presented that week, students must write an annotation for only one of the two articles (1 annotation per week), and can choose which article they wish to submit an annotation for. Groups who are presenting that week do NOT need to write an annotation that week (see below).

*Presenters:* The Tuesday prior to the week you present, you must submit an annotation of your assigned article. This will help ensure that all group members have read the article before working on the presentation. That means two annotations will be due the week before you present, but you do not need to write an annotation the week you present.

Attendance and feedback (9%): Students are expected to attend the presentations of other students, engage in the question period with the presenters, score their presentation, and provide meaningful written feedback.

4. Final Written Assignment (25%): This final research paper will be the culmination of what you learn in this course. Rather than focusing on academic writing, this exercise will evaluate your ability to communicate scientific concepts to a general audience, with an emphasis on describing the influences of genetics on evolution and reproduction and citing appropriate sources. Further details can be found on OWL. **This assignment will be due December 12th at 11:55PM**, but can also be turned in any time after the last day of class and before the due date. No-penalty late period: Life happens. If needed, there is no penalty for turning in the assignment up to 48 hours past the above due date. Note that this no-penalty period is so that students do not have to seek formal accommodation for one or two day illnesses/issues before the due date, and is not added on top of any academic accommodations. 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). Written assignments submitted past the 48 hour period will be subject to a 15% penalty per day (eg, if the assignment is submitted December 16th, there will be a 30% penalty). Assignments submitted 6 days or more late will be given a score of 0%. Accommodation can extend the due date no later than December 31; students with accommodation beginning before the due date and continuing uninterrupted past December 31 will have their score reweighted onto the other components of the course.

If you need to request Academic Consideration to extend the deadline for the final written assignment, it will require formal supporting documentation.

The table below outlines the University-wide grade descriptors.

A+	90-100	One could scarcely expect better from a student at this level
A	80-89	Superior work which is clearly above average
B	70-79	Good work, meeting all requirements, and eminently satisfactory
C	60-69	Competent work, meeting requirements
D	50-59	Fair work, minimally acceptable
F	below 50	Fail

## 6. Student Absences and Missed Coursework

Please also see assignment details above for additional information on absences related to each assignment.

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](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/](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 Tutorial Group Presentation and Final Written Assignment are excluded from this, and therefore always require formal supporting documentation:

When a student *mistakenly* submits their one allowed Academic Consideration request **without supporting documentation** for the Tutorial Presentation or Final Written Assignment assessments or for the quizzes when three or fewer are missed, the request cannot be recalled and reapplied. This privilege is forfeited.

### **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](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](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.

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 website:

[http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/scholastic\\_discipline\\_undergrad.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf).

### **TurnItIn**

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>).

## **7. Support Services**

Please visit the Science & Basic Medical Sciences Academic Counselling 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](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](mailto: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. If you have any questions regarding accommodations, you may also wish to contact Accessible Education at:

[http://academicsupport.uwo.ca/accessible\\_education/index.html](http://academicsupport.uwo.ca/accessible_education/index.html)

Learning-skills counsellors at the Student Development Centre (<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/>.