

## Biology 3467A: Evolution and Reproduction Unofficial Course Outline Fall 2023

### 1. Course Information

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 Counselling) 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

Instructors	Email	Office	Phone	Office Hours
Prof: Dr. Amanda Moehring	amoehrin@uwo.ca	WSC 307	x85596	TBD
TA: Tommy Galfano	tgalfano@uwo.ca			TBD

**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 employability outcome.
- All requests for accommodation must be handled through the Academic Counseling Office.

### 3. Course Syllabus, Schedule, Delivery Mode

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

### 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	10%
Tutorial presentation	20%
Tutorial annotations	10%
Research Tools assignment	25%
Final written assignment	35%

### 1. In-class quizzes (10%):

Your attendance and participation in Biology 3467 will be recorded through your address of two to four quiz questions during lecture, once per week. Quizzes will take place on OWL or on paper and will generally take 5-7 minutes. Student's lowest three quiz scores (including missed quizzes) will be dropped. This buffer is meant to provide flexibility to students in case of illness or other important matters.

### 2. Tutorial Presentations (20%):

Students will be expected to deliver a 20-minute lecture, plus ~5 minutes question period on an assigned primary research article. The presentation will discuss background information that establishes the scientific rationale for the given study, then the methods and results. Lastly, the

presentation will include an overview of the results of at least one directly-related research paper that has occurred since the assigned article was published. Presentations will be done as groups of two; if there is an odd number of students in the tutorial then a student may instead be expected to give a solo presentation. Presentation dates will be assigned during the first week of class; articles will be assigned to each group (or solo) approximately two weeks before their assigned presentation date. Two groups will present per week. 2% of this mark is comprised of providing an assessment and written feedback for all of the other groups that are presenting. More information can be found on OWL.

3. Tutorial Attendance and Annotations (10%):

Non-presenters (8%): 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. **Annotations will be due at 11:55PM each Tuesday on weeks there are tutorials.** Students must also watch all presentations and engage in the question period.

Presenters (2%): 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.

3. Research Tools Written Assignment (25%): Students will discuss one research tool used to study reproduction and evolution. Students will also design two novel experiments utilizing this tool in the study of reproduction and evolution. Further details can be found on OWL. **This assignment will be due November 9th at 11:55PM.**
4. Final Written Assignment (35%): 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. **This assignment will be due December 15th at 11:55PM**, but can also be turned in any time between Dec 8<sup>th</sup> and the due date.

**Important assignment information:**

- All assignments are due at 11:55 pm EST unless otherwise specified.
- **Written assignment automatic extension:** Life happens. If needed, each student may turn in each of the written assignments up to two days late without penalty.
- Written assignments that are three or more days late will be subject to a 10% penalty per day, with the penalty applied starting at day three (eg, if the assignment is five days late, there will be a 30% penalty). Assignments that are 7 days or more late will be given a score of 0%.
- Late tutorial annotations will receive a score of 0%.
- Written assignments will be submitted to Turnitin (statement in policies below).
- Rubrics will be used to evaluate assessments and will be posted with the instructions.

- After an assessment is returned, students should wait 48 hours to digest feedback before contacting their evaluator. However, to ensure a timely response, reach out within 7 days.
- Student's lowest three in-class quiz scores (including missed quizzes) will be dropped. This buffer is meant to provide flexibility to students in case of illness or other important matters.
- If you wish to contest a grade, you must providing justification for a grade change in writing to the course instructor.
- Annotations, the tutorial presentation, the research tools assignment, and the written assignment are MANDATORY. Failure to submit any of these assignments (even if late enough to result in a 0%) will result in a final grade of 45%.

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. 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.

## 7. Student Absences

Late submissions are accepted and penalties waived with proof of accommodation. Academic accommodation can be received through the steps outlined in the following section. If you are unable to meet a course requirement due to illness or other serious circumstances, please follow the procedures below.

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

[https://uwo.ca/univsec/pdf/academic\\_policies/appeals/academic\\_consideration.pdf](https://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](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf).

## 8. 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 accommodation for their absence in writing at least two weeks prior to the holiday to the course instructor and/or the Academic Counselling office of their Faculty of Registration. Please consult University's list of recognized religious holidays (updated annually) at

<https://multiculturalcalendar.com/ecal/index.php?s=c-univwo>.

## 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).

# 9. Academic Policies

The website for Registrarial Services is <http://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 Web site:

[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>).

# 10. 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. 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)

if you have any questions regarding accommodations.

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/>.