Biology 9436 – Graduate Seminar Course in Behavioural Ecology
Winter Term 2023-2024 Course Syllabus

Course description
Behavioural ecology is the study of how behaviour evolves under selection. It seeks to decipher the ultimate function of evolved aspects of behaviour and does so by comparing observed patterns of individual or group behaviour to those predicted under adaptive scenarios. This course will adopt an interactive format whereby students learn, debate, explain, present and ultimately advance current and classic topics in behavioural ecology, as facilitated by weekly guided discussion of a course text.

Goals of the course
1- *To gain a familiar, if not critical, understanding of the principles of behavioural ecology.* These principles include the recognition of levels and units of selection, constraints and trade-offs on fitness, direct versus indirect fitness quotients, genetic and environmental effects on phenotypic variance, as well as basic statistical and experimental approaches for *doing* behavioural ecology in the lab or in the field. In this course, you will learn, develop and communicate your understanding of these topics through directed readings and student-focussed discussion.

2- *To recognize and organize ideas and findings from the scientific literature.* To develop as a scientist in any field it is important to develop bibliometric skills that allow you to interrogate the literature strategically and efficiently, including the ability to parse massive and ever-changing on-line databases, plot forward and reverse citation maps, asses article, author and journal impact, cultivate personal libraries and use reference management software. In this course, you will write an 'Introduction' to a scientific paper on a topic chosen in consultation with the course instructors. Your Introduction will be short, but fully referenced, and will strive for an ideal focus and format, as prescribed by *The Scientist's Guide to Writing* by Stephen B Heard, 2nd edition (Princeton University Press, 2022).

3- *To develop confidence and skill in science communication.* In any science-related job it is essential to communicate effectively in written and spoken word and do so across traditional and new media formats. In this course, we will ask you to present short (10-15 mins) seminars that explain topics from the course text – first, in a manner that is impartial and strictly informative (one seminar), and second, in a manner that is critical and opinionated (one seminar). These different but complimentary styled presentations will form the basis of our weekly and lively discussions.

Course timetable
Weekly meetings and seminars: Weeknight* 3:30-5:30 PM

*The schedule has not been determined. To be scheduled on first meeting to accommodate everyone's schedules. Likely late afternoon or early evening one weeknight per week.

Instructor information

Dr Beth MacDougall-Shackleton emacdoug@uwo.ca
Dr Graham Thompson gthomp6@uwo.ca

Course materials

- *Conceptual Breakthroughs in Ethology and Animal Behavior* by Michael D. Breed (1st ed. Elsevier 2017)
- *The Scientist's Guide to Writing* by Stephen B Heard (2nd ed. Princeton University Press, 2022)

Evaluation

Oral presentations	(two per student)	50%
In-class discussion	(leader, player, passenger)	30%
Custom essay	(fun take-home project)	20%

Oral presentations are the backbone of the course. We anticipate two presentations per student – one as a proponent and the other as an antagonist to a chosen essay in the course text. Each presentation is worth 25% of course grade.

In-class discussions are typically fun, and make the course entertaining as well as educational, for students and instructors alike. We don't over analyze this aspect of student performance, because… it's hard to talk freely if you think your every contribution is being evaluated. Instead, at the end of the course, the instructors will reflect on each student's cumulative input and assign each student a nominal grade of 'leader' (to the rare student who consistently offers insightful and timely leads to discussion; 30/30), 'player' (to students who remain engaged and contribute thoughts and anecdotes as they are able; 22/30), and 'passengers' (to the few students who are unprepared, absent without justification, or who otherwise rarely contribute despite opportunities to do so; 15/30 or less).

Custom essay is a take home project that will be described in class. It is designed to develop skill in a supportive environment for writing and citing with precision. Each student will identify (in consultation with the course instructors) a lively topic from the field of behavioural ecology. The student will write a four paragraph 'Introduction' (Yes, four paragraphs only) to the topic that identifies one outstanding question and its significance to the field at large. The instructors will provide guidance on how this literature and writing blitz will unfold.

Potential and likely topics

Natural selection
Sexual selection
Inclusive fitness

Adaptation
Adaptationist paradigm
Measures of fitness
Genetic and environmental effects
Gene by environment interactions
Phenotypic plasticity
Phylogeny and diversity
Decision making
Information use and sensory ecology
Cognition
Predictive modelling
Mating systems and mate choice
Territoriality
Optimal foraging
Predation risk
Risk management
Life history trade-offs
Rituals and contests
Signalling theory
Group behaviour
Selfish herds
Cooperation and selfishness
Altruism and spite
Complex societies
Sexual conflict
Parental investment
Game theory

Health/Wellness Services

Students who are in emotional/mental distress should refer to Mental Health Support at https://www.uwo.ca/health/psych/index.html for a complete list of options about how to obtain help.

Accessible Education Western (AEW)

Western is committed to achieving barrier-free accessibility for all its members, including graduate students. As part of this commitment, Western provides a variety of services devoted to promoting, advocating, and accommodating persons with disabilities in their respective graduate program.

Graduate students with disabilities (for example, chronic illnesses, mental health conditions, mobility impairments) are strongly encouraged to register with Accessible Education Western

(AEW), a confidential service designed to support graduate and undergraduate students through their academic program. With the appropriate documentation, the student will work with both AEW and their graduate programs (normally their Graduate Chair and/or Course instructor) to ensure that appropriate academic accommodations to program requirements are arranged. These accommodations include individual counselling, alternative formatted literature, accessible campus transportation, learning strategy instruction, writing exams and assistive technology instruction.

Statement on Academic Offences
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_grad.pdf

Note the following SGPS regulation

Students must maintain a cumulative average of at least 70% calculated each term over all courses taken for credit, with no grade less than 60%.

Schedule of lecture and oral presentations
TBA by date: January / February / March / April