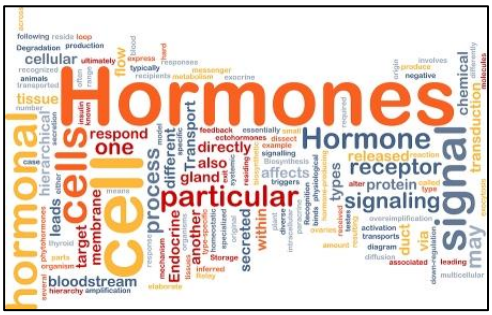
Evolutionary Endocrinology



Lecture- and Application-Based Course

Department of Integrative Biology - Winter 2022

Course Code: BIOL 4252
Professor: Dr. Oliver Love
Email: olove AT uwindsor DOT ca
Last Updated: January 26th, 2022

Course Description - This course integrates training spanning first-year courses in *Organismal Function*, second-year courses in *Ecology* and *Animal Physiology* and third-year courses in *Evolution* and *Animal Behaviour*. As such, it examines how natural selection has shaped the molecular, cellular and organismal processes underlying the functioning of endocrine systems. We combine overviews of the major endocrine systems (e.g., reproductive, stress, metabolic, developmental etc.) with results from field- and laboratory-based experimental research to explore the role of hormones. An evolutionary perspective is emphasized throughout as a means for biologists to appreciate how and why complex endocrine systems are impacted by human-induced changes in the environment. As a means of learning key applied skills needed in the workplace after University, students will directly use what they have learned in lectures to develop and present a summary poster and writing exercise. Assessment will come from a diversity of sources, including a mid-term and final exam, meaningful applied exercises in tutorials, as well as a self-assessment of the student's learning growth in the course.

Expectations for the Course - This course introduces students to the evolutionary role of Hormones. The proximate goal is to ***improve your ability to critically evaluate the scientific research*** that informs us about how hormones impact the daily lives of humans and other organisms. The ultimate goal is to use the course material and the purposeful and meaningful activities as a vehicle to ***prepare you for the next stage of your careers*** by exposing you to authentic demands that will improve your employability, interpersonal skills and eventually the transition into the workplace. A large degree of our time will be spent examining scientific studies that strive to help us better understand *how* and *why* natural and human systems function. For this course to be beneficial in your scholastic development, students must absorb the basic information on how endocrine systems function to understand how they have been shaped by evolution to function optimally. Integrating mechanism within an evolutionary framework, and then being able to apply it to novel circumstances is therefore a central focus of our course.

Textbooks - There are no required textbooks for this course. However, you may wish to access books available in the Leddy Library as references to help you better understand lecture material and topics covered in tutorials. Some available examples are: ***Comparative Endocrinology and Reproduction*** – *K. Joy, A. Krishna, C. Haldar*; ***Animal Physiology: Adaptation and Environment*** – K. Schmidt-Nielsen; ***Hormones and Animal Social Behavior*** – E. Adkins-Regan.

Final Date to Voluntarily Withdraw from this Course - April 16th, 2022

Format for the Winter 2022 Semester

As we are all aware, our classes this semester will begin virtually (**via Zoom** – lecture link below) until **January 31st** when we are set to return to in person lectures. **Please see updated details below.**

Live Class Lecture Hours - Mondays and Wednesdays, 4:00-5:20pm online via Zoom:

https://zoom.us/j/95560014744?pwd=YjY1K0pTYU5qS0NzV3FUMkhTYWwydz09
Meeting ID: 955 6001 4744 Passcode: 693852

Live Lecture Format - Lecture slides are posted as PowerPoint files on the course Blackboard website prior to each live lecture. You are strongly advised to download the slides before class and have them with you during lectures. To encourage everyone to attend lectures, key portions of text have been removed from the uploaded slides. Lectures will be held Face-to-Face (F2F) beginning January 31st, but will also be live-streamed via Zoom to accommodate those students who have time conflicts in attending closely-scheduled F2F and online lectures, labs and tutorials. For all students attending F2F lectures, as per University regulations, individuals must complete their daily **self-assessment** using the Safe Lancer app or webform BEFORE coming to campus to ensure they have their green badges ready to scan at the **QR scanning stations** upon entering designated entrances to buildings. If possible, please try your best to manage your time so that you arrive to class on time given these restrictions.

You are responsible for attending all live lectures, whether F2F or online, to ensure you are up to date on all lecture materials. While live lectures are recorded, links to captioned videos of the recordings will only be made available to students who report illness using the University of Windsor "Report Illness" form (see details below). When I receive a copy of evidence of your submitted report, I will arrange to release the recorded lecture. Recordings cannot be made available for any other reason.

During lectures students will have regular opportunities to ask live questions during the material using the "raise hand" or "chat" tools in Zoom. To ensure we maintain privacy for everyone attending live online lectures, students are not required to have their video turned on and all questions can be asked via the chat. Dr. Love will have his video turned on at all times to keep everyone attending the online lecture format as engaged as possible. Students are responsible for all material presented and discussed during the lectures, whether it is presented on the slides or not. As such, the posted lecture slides are a tool to strengthen your comprehension so you can concentrate on the main points of the topics being presented. They are not meant as a replacement for attending the live lectures.

Virtual Office Hours - Lecture material (Dr. Love): Thursdays 3:00-4:00pm **via Zoom w/ waiting room** (one student at a time; first come, first served). Questions on lectures cannot be answered by email.

https://zoom.us/j/99106327851?pwd=bGthOTdFN2d3Z1N1Vy9aemVSYnMvdz09
Meeting ID: 991 0632 7851 Passcode: 752162

Assessment and Marking Scheme

1) Poster Presentation (20% of course grade). Groups of two students will develop, prepare and present a scientific poster based on a topic of your choice in the field of *Evolutionary Endocrinology*. The goal is to train you in ***applying what you have learned in the course to effectively present complex ideas and topics to future employers and peers under time constraints within a simulated workplace, interview or research environment***. Groups deliver their posters to the GAs and their fellow students at the end of semester and will be evaluated on: the capacity and clarity of conveying the main details of the topic, the ability to present relevant background information placing the topic in a broader context audience, and the ability to effectively answer questions. The GAs will present a "model" poster and will discuss how to develop, organize, make, print and present an effective scientific poster. Posters will be presented within the online tutorials periods at the end of the semester to the GAs, Dr. Love and selected judges. Group members will be assigned using a lottery system by the GAs in tutorials.

2) Popular Science Article (10% of course grade). Using plain language and a format that is accessible to science-based employers as well as the broader public, you will develop and write a 1-page 'popular science article' summarizing a scientific article of your choice that reports on a new and interesting topic in *Evolutionary Endocrinology*. The goal is to allow you to ***gain skills in summarizing and communicating complex topics by using language and a format that is approachable to future employers and the public***. Your GAs will assist you in choosing your scientific paper and developing your article, and will also provide an example of an article based on a relevant scientific paper.

3) Poster/Article Development (8% of course grade). You are required to attend all scheduled tutorial sessions (schedule below; ***2% of course grade***). At the beginning of each tutorial, you must provide a 'contribution statement' (***2% of course grade***) outlining what you have done up to that point to act as a valuable poster team member. The goal of the tutorials is to participate with your GAs and your fellow group member in developing your scientific poster (***2% of course grade***), and develop your popular science article (***2% of course grade***). You will be graded on your contribution, participation and capability to evolve the poster and article from basic ideas, to a working concept, and final products.

4) Mid-Term Exam (25% of course grade). The mid-term exam (**February 28th**) will take the form of an 'open-book' online format exam consisting of a mixture of conceptual questions based on material and concepts covered during class in Lectures 1-9. While the exam can be completed in the regular amount of class time (75 minutes), students will have a 24-hour window to complete and return their exam.

5) Final Exam (35% of course grade). The final exam (Time and Date – TBA – held during regular exam period) will be similar in structure to the mid-term exam (details TBA when the University has finalized final exam policies), and will be based on all of the material and concepts covered in class (Lectures 1-19, with a stronger focus on lectures 10-19). To succeed, you will need to take the basic information you have learned in Lectures and apply it to broader questions in *Evolutionary Endocrinology*.

6) Student Self-Assessment (2% of the course grade). Involving you, the student, in the course assessment process is absolutely critical for the beneficial development of teaching and learning outcomes for the course. At the end of the semester, a short question and answer assignment will be administered which will ask you about your learning experiences in the course. Completing the assignment about your experiences this semester will provide **2% towards your course grade**.

Lecture Calendar (as of January 26th)

Lecture	Date	Topic
1-2	January 17/19	Course Structure/Introduction to Endocrinology
3-4	January 24/26	Hormonal Structure, Categorization and Mechanism of Action
5-6	Jan 31/Feb 2	Endocrine Techniques in Medicine and Ecology
7-8	Feb 7/9	The Evolution of Endocrine Systems
9	February 14/16	Guest Lecture/Mid-Term Self Review (Dr. Love away for NSERC)
No Lectures	February 21/23	Family Day and Reading Week
Mid-term Exam	February 28	Mid-Term Exam (based on Lectures 1-9)
10-11	March 2/7	Hormonal Control of Food Intake
12-13	March 9/14	Hormonal Control of Growth and Development
14-15	March 16/21	Neuroendocrine Control of Stress
16-17	March 23/28	Biological Clocks/Hormones and Reproduction
18-19	March 30/April 4	Aggression-Territoriality/Hormones and Human Change
	April 6	Overflow Lecture Time
Final Exam	TBA	Final Exam – Date and Time to be determined

Online Tutorials

Your Graduate Assistants (GAs) for our course this semester are **Erika Nissen, Sara Bellefontaine and Mary Ibrahim**. All tutorials will be held virtually this semester via **BlackBoard Collaborate Ultra**, and will begin the week of January 24th (see schedule below). You are required to attend the section you are registered in, or you will not receive the tutorial attendance, participation and contribution grades. Tutorial sections include: Section 51: Monday 14:30-15:20; Section 52: Tuesday 16:00-16:50; Section 53: Wednesday; 14:30-15:20. The GAs will be holding one hour of **virtual office hours per week using BlackBoard Collaborate Ultra on Thursdays from 1-2pm.**

Tutorial Calendar (as of January 26th)

Tutorial	Date	Tutorial Subject
1	January 24-26	GA Practice Poster and Popular Science Article Introduction
2	February 7-9	Poster Idea Discussion with GAs and Group Members
Pop. Sci. Article Topic Due	February 23 (by 5pm)	Draft of your Popular Science Article Topic Due for Approval by the GAs
3	Feb. 28 to March 2	Popular Science Article Preparation and Poster Outline
4	March 21-23	Poster Draft Presentation
5	April 4-6	Final Poster Preparation and Practice
Article Due	April 7 (by 5pm)	Popular Science Article due to GAs via Blackboard
Posters Due	April 8 (by 5pm)	Posters due to GAs via Blackboard
Presentations	April 11-13	Poster Presentations

Additional Course Information

Plagiarism (article, posters, exams) - Plagiarism, submitting someone else's work as your own, is **not** tolerated for any course. It is your responsibility to read, review and understand the **University's official policy on student content and plagiarism**. All instances of plagiarism can result in a zero on the exam or assignment, and will be referred to the Office of Student Integrity. If you are unsure whether what you have written is plagiarism or not, ask either your professor or your GA prior to submission.

Faculty of Science Honour Code - The office of the Dean of Science at the University of Windsor has developed the following honour code with which they expect all science-based students to follow:

Students of the University of Windsor pursue all endeavours with honour and integrity, and will not tolerate or engage in academic or personal dishonesty. As a student of the University of Windsor, I pledge to pursue all endeavours with honour and integrity, and will not tolerate or engage in academic or personal dishonesty.

As defined in the Windsor Student Code of Conduct and Senate Bylaw 31 on Academic Integrity, this pledge covers, but is not limited to cheating, plagiarizing or misrepresenting the ideas of someone else, unauthorized assistance or collaboration, and falsifying data.

Missed Lectures, Assignments or Exams - You are expected to attend all live lectures and complete 100% of the course assignments/exams. There will not be make-up assignments or exams in this course. For students who miss individual lectures, the mid-term OR the final exam due to illness only: the University has an official policy for how to report illness during the Winter 2022 semester. Reporting details are at the following website: **http://ask.uwindsor.ca/app/answers/detail/a_id/577** Specifically, you must fill out the "Report Illness" form on that website, submit it and email Dr. Love to

confirm you have submitted an Illness Report through the above web link. **Please note that it is an academic offense to report a sickness if you are not, in fact, sick**. Recorded lectures will only be made available to students who have missed a given lecture and also fill out the Report Illness form. In terms of assignments and exams, your grade will be pro-rated on the basis of your completed evaluations, as indicated in the course syllabus. You must notify Dr. Love **before** the start of the exam. The assignment components of this course are worth 40% of your final grade in this course, and the exam components are worth 60% of your final grade in this course. If you miss the final exam due to illness, the mid-term will become worth 60% (and vice versa), so that your course grade continues to derive 60% from test components. Late assignments will be docked 10% per day. Exceptions to these policies will be made when you request a medical exemption (via the Illness Report) from Dr. Love **before** the due date, and if you receive support for the exemption by email. Please be mindful that you are working with a classmate on your poster assignment, and so any delays will additionally affect your partner's grade. Finally, it is the student's responsibility to know the minimum assessment completion requirements to fulfill course requirements set out by the University.

Exam Conflicts (three exams within 24 hours) - It is the student's responsibility to determine whether or not they have exam conflicts (mid-term or final) before they arise. If a conflict will occur, the student must contact the registrar's office and arrange the required paperwork prior to the exam. The professor cannot accept last-minute requests for exam delays due to conflicts without the registrar's permission.

Exam/Assignment Re-Grading - Every attempt is made to grade exams and assignments completely and fairly. Nonetheless, mistakes can occur. If you feel a mistake has occurred after viewing your exam or assignment, you may submit a regrade petition to Dr. Love within one week of the exam viewing/returned assignment. A regrade petition must clearly and concisely state the reason(s) why you think your answer is deserving of additional credit. Regrade requests will not be processed without a written petition. Dr. Love will not entertain requests for 1-2 points. Dr. Love and the GA's are primarily concerned with correcting fundamental oversights, not minor and debatable issues. Of course, we will be happy to discuss any aspect of the exam with you during virtual exam-viewing hours. The same applies for the assignments during virtual office hours. The goal is to have you master the material and understand the concepts. Students who submit exams or assignments for regrading do so with the knowledge that we may regrade your entire exam/assignment, so your mark could go up, go down, or remain unchanged. If you absolutely cannot attend the virtual exam viewing, you have one week to set up an alternative time with your GA. Similarly, you have one week to discuss your assignment grades with your GA after they are returned. No requests will be considered after the one-week time limit.

Respect for Diversity - Students from all backgrounds should feel welcome and safe in all courses and virtual classrooms, and our course is absolutely no exception. The diversity that students bring to this course is viewed as a resource, benefit, and strength. The design of this course is such that all materials and activities that we have developed are intended to be respectful of all forms of diversity, including gender, gender identity, sexuality, age, socioeconomic status, ethnicity, race, culture, and ability. Since these endeavors are naturally a continuous journey of learning and self-reflection, I (like many people) am always in the process of learning more about diverse perspectives and identities. Please share any suggestions for ways we can continue to improve our course for you and all the students who share it.

The disciplines of *Physiology and Endocrinology*, like most areas of science, are not without their prejudices. Historically, much of these discipline's science has been built on a small subset of privileged voices, particularly older, white men. We therefore must acknowledge that there may be overt or covert biases in the materials presented due to the lens in which this discipline has developed over

time. As such, at times some of the material in this course may evoke strong emotions, so please be respectful of others' emotions and be mindful of your own. It is critical that each class member show respect for all worldviews expressed during our class and tutorial time together. Nonetheless, *Evolutionary Endocrinology* is thankfully a rapidly evolving field trying its best adapt to changing norms and mores, and as such better represent the diversity of people who make it so fun and interesting a field to study and work within. Taken together, we hold great optimism that the field is being continuously strengthened by a more diverse set of experiences and voices. Please share your own.

Wellness Statement - Mental health concerns or stressful events (e.g., a global pandemic) may lead to diminished academic performance, or reduce your ability to participate in your daily activities. These concerns and issues are greatly magnified during a time when we cannot meet regularly with our friends and family who often provide us with the greatest personal support. Free, easily accessible, confidential mental health services are available to assist you with addressing these and other concerns you may be experiencing. If you feel you need these at any time this semester for whatever reason, please seek them out without delay. You can learn more about the broad range of mental health services available on campus at **https://www.uwindsor.ca/studentcounselling/**.

Land Acknowledgement - The University of Windsor sits on the traditional territory of the Three Fires Confederacy of First Nations, which includes the Ojibwa, the Odawa, and the Potawatomie. As members of this University, we respect the longstanding relationships with First Nations people in this place in the 100-mile Windsor-Essex peninsula and the straits – les détroits – of Detroit.