PSYCH 460: BEHAVIOURAL NEUROENDOCRINOLOGY { SYLLABUS }

THE UNIVERSITY OF BRITISH COLUMBIA
Department of Psychology
Faculty of Arts

Winter Term 1 2023

(Last updated: September 12 2023)

*I would like to acknowledge that UBC's Point Grey Campus is located on the traditional, ancestral, and unceded territory of the **xwməθkwəy̓əm (Musqueam) people**. The land it is situated on has always been a place of learning for the Musqueam people, who for millennia have passed on their culture, history, and traditions from one generation to the next on this site.*

TEACHING TEAM

	Contact Details	Office Hours	Location
Mudi Zhao, MA *(Course Instructor)* PhD Student Dept. of Psychology	**mzhao@psych.ubc.ca** Please don't hesitate to reach out on weekends/evenings… etc. If I don't reply within 48hrs, please send me a follow-up!	Wednesdays 10am–12pm Or by appointment	**Zoom Room (link)** ID: 657 7373 5604 Passcode: 988374
Giulia Cocco *(Teaching Assistant)*	giuliaco@student.ubc.ca	By appointment	**Zoom room (link)** ID: 670 9855 1807 Passcode: 135102
Brittany Docolas *(Teaching Assistant)*	bdocolas@student.ubc.ca	By appointment	**Zoom room (link)** ID: 661 553 9906 Passcode: 873010

COURSE OVERVIEW

PSYC 460 Behavioural Neuroendocrinology PSYC 460 002 Credits: 3

Welcome to PSYC 460! This course focuses on the dynamic relationships between the brain, the endocrine system, and behaviour. We will study how hormones interact with the nervous system and how hormonal signalling can influence behaviour, from basic actions to higher-order cognition across the lifespan. We will discuss the interplay of hormones and homeostasis, brain development, stress, affect, learning and memory, and decision-making. We will dive into present-day research in the field and examine primary literature (predominantly mammalian animal research), and discuss experimental techniques and design. In addition, you will develop the necessary knowledge and tools to write an original research grant proposal towards one of Canada's Tri-agency funding programs: NSERC or CIHR.

— ***Prerequisites:*** 4th-year standing, PSYC 304 OR 360
—*This course does NOT require a textbook. All reading material will be provided on Canvas.*

TEACHING PHILOSOPHY

Science has historically been built on a small subset of privileged voices, bringing subjectivity and overt and covert biases to material which would ideally be objective in nature. Many scientific institutions, including those of North America, have a history of unethical research practises and scientific racism and sexism. Relevant to this class, biases and misconceptions have restricted preclinical neuroscience research to the study of male subjects only. The neglect of female subjects has hindered our understanding of the etiology, symptamology, and treatment of mental and neurological disease in women. It was only in 2016 that the US National Institute of Health introduce the Consideration of Sex as a Biological Variable mandate, requiring studies to include both male and female subjects. We will discuss this topic in class. We will also make an effort in reading papers from a diverse group of scientists, but limits still exist to this diversity.

As your instructor, I will work to create a learning environment in this class that welcomes, listens to, and respects students of all identities, inclusive of race, gender, sexuality, religion, and ability. If at any point you feel as though I am failing to live up to an inclusive space in our course, or if you feel that class content is inappropriate and/or makes you uncomfortable, I encourage you to talk to me or your TAs. There will also be a link to a Qualtrics survey on Canvas should you like to provide feedback anonymously.

KEY COURSE INFORMATION

Canvas	All lecture slides, reading materials, announcements, and additional information will be posted here. Assignments will be submitted through Canvas.
Lectures	Lectures are held in-person **Tuesdays & Thursdays, 11am-12:20pm in Orchard Commons Room 3074**. **Lectures will NOT be recorded**. Attendance to class (including journal club sessions) are key to success. If you must miss a lecture, I highly recommend that you connect with a classmate for notes. Lectures slides alone will not contain all the information presented in class and will not be sufficient for exams. ***Audio recordings:*** I understand that note-taking during class can be stressful, inaccessible, and a roadblock to learning. If you wish to make **audio** recordings, I am okay with this. However, other students in the class may not wish to be recorded. If you'd like to make recordings, please do so mindfully and take a seat near the front.
Piazza	Piazza is linked in Canvas. We will use it as a platform for general questions/concerns about the course that are relevant to the entire class. This includes course content, course deadlines/expectations, and exams. ***Sign up here.***
Office Hours	My office hours are **Wednesdays, 10am-12pm on Zoom**. If this time doesn't work for you, or you would prefer to have a one-on-one discussion, please email me to schedule an appointment. I'm also happy to answer brief questions about course content over email. Please email your TAs to schedule office hour appointments. For any exam or assignment feedback, please contact ***BOTH of your TAs in the same email.***
Accessibility	I want to make this course accessible to students of all backgrounds and circumstance. If you have any concerns, please feel free to reach out to me, either by email or in person.
Academic Concessions	I have a "no questions asked" approach to momentary concessions due to life circumstances. In most cases, you will not be asked to provide any type of documentation. Please email me in a timely manner (ideally before an exam or assignment deadline) so that we can work out an appropriate solution.

Got a question? Please consult the syllabus first. If you can't find the answer, please follow these guidelines:

- ✤ Questions about course content → post in Piazza
- ✤ Questions about course deadlines/expectations → post in Piazza
- ✤ General questions about exams → post in Piazza
- ✤ Exam/assignment feedback, cumulative grade → contact **BOTH** of your TAs in the **same email**
- ✤ Personal issues/concerns → email instructor

TENTATIVE COURSE SCHEDULE

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PSYC 460 Winter Term 1 2023 Course Schedule					
Date			**#**	**Topic**	**Reading**
Thurs	Sep	7	1	Course Overview + Introduction to Behavioural Neuroendocrinology	*Techniques in Behavioural Neuroendocrinology Handout*
Tues	Sep	12	2	The Endocrine System	*Levine (2012) Handbook of neuroendocrinology*
Thurs	Sep	14	3	Homeostasis & Behaviour	
Tues	Sep	19	4	Sex Differences in Development & Behaviour (I)	*McCarthy (2010) Colloquium series of the developing brain (Chp. 2-8)*
Thurs	Sep	21	5	Journal Club: Williams et al. (1990)	*Williams et al. (1990) Behavioral neuroscience*
Tues	Sep	26	6	Sex Differences in Development & Behaviour (II) **Experiment proposal I due @ 11:59pm**	*Schulz et al. (2009) Hormones and behavior*
Thurs	Sep	28	7	Parental Behaviour	*Rilling & Young (2014) Science*
Tues	Oct	3	8	Social Behaviour	*Rigney et al. (2022) Endocrinology*
Thurs	Oct	5	9	Journal Club: Berendzen et al. (2023)	*Berendzen et al. (2003) Neuron*
Tues	Oct	10		Stress I: HPA Axis	*Panagiotakopoulos & Neigh (2014) Frontiers in neuroendocrinology*
Thurs	Oct	12		Makeup monday: NO CLASS **Experiment proposal II due @ 11:59pm**	
Tues	Oct	17	10	**MIDTERM**	**Lectures #1-9**
Thurs	Oct	19	11	Stress II: Sex Differences	*Panagiotakopoulos & Neigh (2014) Frontiers in neuroendocrinology*
Tues	Oct	24	12	Journal club paper: Pedersen et al. (2023)	*Pedersen et al. (2023) Behavioral brain research*
Thurs	Oct	26	13	Neuroimmune System **Experiment proposal III due @ 11:59pm**	*Haykin & Rolls (2021) Immunity*
Tues	Oct	31	14	Hormones & Affective Disorders	*Sánchez et al. (2010) CNS neuroscience & therapeutics*
Thurs	Nov	2	15	Journal Club: Lombardo et al. (2021)	*Lombardo et al. (2021) Journal of Affective Disorders*

Tues	Nov 7	16	Learning & Memory **Experiment proposal IV due @ 11:59pm**	*Wirth (2015) Adaptive human behavior and physiology*
Thurs	Nov 9	17	Journal Club: Barsegyan et al. (2010)	*Barsegyan et al. (2010) PNAS*
Tues	Nov 14		Reading week	
Thurs	Nov 16	18	Motivational Behaviour **Experiment proposal V due @ 11:59pm**	*Tobiansky et al. (2018) Frontiers in endocrinology*
Tues	Nov 21	19	Journal Club: Orsini et al. (2021)	*Orsini et al. (2021) Neuropsychopharmacology*
Thurs	Nov 23	20	Grant writing workshop **Experiment proposal VI due @ 11:59pm**	
Tues	Nov 28	21	Grant writing workshop	
Thurs	Nov 30	22	Grant writing workshop	
Tues	Dec 5	23	Behavioural neuroendocrinology @ UBC	
Thurs	Dec 7		No class **Grant proposal due @ 11:59 PM**	
Final exam period December 11–22				**Final exam TBD, Lectures #10–19**

COURSE EVALUATION

Assignment	*Description*	*%Grade*
Journal Club Participation	Throughout the semester, six of our classes will be in the form of a journal club meeting. An empirical paper is assigned for each of these classes (see course schedule). Although we will go through the paper in detail during lecture, you're asked to read the article ***prior*** to class. This will not only facilitate a deeper understanding of the study, but also allow for rich discussion during class. For each journal club, you will submit ONE discussion point (e.g., strength, limitation, implication of the study) or clarification question about the paper. We will try to address these during class. **Submissions are due at 11:59pm on the day BEFORE class.** You will receive 0.5% for each appropriate submission.	3%

Experiment Proposal	For each journal club meeting, you submit a brief, single-paragraph (max 250 words) experiment proposal. A research question that relates to either a limitation of the paper, or a potential future direction, will be announced during class. You then propose ONE experiment to address the research question and describe its anticipated findings. **Submissions are due at 11:59pm on the day of the subsequent class** (see course schedule). For each proposal: ✣ Experimental design ~ 1pt ✣ Justification of experimental design ~ 1.5pt ✣ Anticipated findings ~ 0.5pt Five proposals (out of 6 possible submissions) will be counted towards your final grade (i.e., we will drop your lowest grade).	15%
Grant Proposal	You will select any research topic of your choice that fits within the scope of behavioural neuroendocrinology. You will then identify a gap in our current knowledge on the topic and write a single-page NSERC or CIHR research grant proposal. Three lectures at the end of the semester are dedicated to this assignment. The final grant proposal is **due at 11:59pm on Dec 7** (see course schedule).	20%
Midterm Exam	In-person during class time. Multiple choice and short-answer questions.	30%
Final Exam	In-person (date/time TBA). Multiple choice and short-answer questions.	32%

LEARNING OUTCOMES

The objective of this course is to familiarize you with the dynamic, bidirectional relationships among the endocrine system, brain, and behaviour, and to understand how disruptions to the endocrine system might interact with neural systems to produce maladaptive behaviour. In addition, a core component of this course is to help you develop tools for reading/interpreting primary research articles and for gaining insight in experimental design. By the end of the course, I hope that you will be able to:

- ✣ Understand the basic principles and mechanisms of hormone signalling in the brain
- ✣ Describe how hormones facilitate homeostatic regulation
- ✣ Have a strong understanding of the organizational-activational hypothesis of hormone-driven sex differences in brain and behaviour and appreciate its nuances
- ✣ Understand the role of hormones in parental and social behaviours
- ✣ Have a detailed knowledge of endocrine responses to acute and chronic stress and describe how the endocrine, neural, and immune systems may interact to increase vulnerability for affective disorders
- ✣ Identify ways in which hormones can interact with neuromodulatory systems to influence learning and memory, and motivational behaviour
- ✣ Identify gaps in current literature and design experiments with various techniques used in behavioural neuroendocrinology

MISSED EXAMS AND LATE ASSIGNMENTS

UBC's academic concessions policies can be found here: https://www.arts.ubc.ca/degree-planning/academic-performance/academic-concession/. If you must miss a midterm due to acute illness, you do not need to supply me (or any of your instructors) with a medical note. This policy does not apply to exams during the final exam period (i.e., "final" exams). If you miss a final exam, you'll need to contact your faculty Academic Advising Office to address the issue.

Late Assignments	Late submissions will NOT be accepted for journal club participation. Unless an academic concession has been granted: ❖ Experiment proposals ~ 25% reduction for each day it's late ❖ Grant proposal ~ 20% reduction for each day it's late
Missed Exams	Accommodations for a missed midterm exam will be handled on a case-by-case basis. Generally, you will be asked to write the exam within one week of the original test date. If this isn't possible, you may have your final grade made up of a weighted average of your final exam.

ACCESSIBILITY & ACCOMMODATIONS

If you encounter medical, emotional, financial, or other personal problems during your time in this course that affect your attendance or academic performance, **please reach out and notify me as soon as possible, as well as your Faculty Academic Advising Office**.

The university accommodates students with disabilities who have registered with the Centre for Accessibility office. The university also accommodates students whose religious obligations conflict with attendance of scheduled exams. Students who plan to be absent for athletics, family obligations, or other similar commitments usually cannot be accommodated. In these cases, please reach out to me during the **first week of class**.

UBC's academic concessions policies can be found here: https://www.arts.ubc.ca/degree-planning/academic-performance/academic-concession/

UBC POLICY AND STATEMENTS

UBC's statement about the University's values and policies

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious observances. UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions. Details of the policies and how to access support are available on the UBC Senate website.

UBC's statement on potentially sensitive topics while studying abroad

During this pandemic, the shift to online learning has greatly altered teaching and studying at UBC, including changes to health and safety considerations. Keep in mind that some UBC courses might cover topics that are censored or considered illegal by non-Canadian governments. This may include, but is not limited to, human rights, representative government, defamation, obscenity, gender or sexuality, and historical or current geopolitical controversies. If you are a student living abroad, you will be subject to the laws of your local jurisdiction, and your

local authorities might limit your access to course material or take punitive action against you. UBC is strongly committed to academic freedom, but has no control over foreign authorities (please visit http://www.calendar.ubc.ca/vancouver/index.cfm?tree=3,33,86,0 for an articulation of the values of the University conveyed in the Senate Statement on Academic Freedom). Thus, we recognize that students will have legitimate reason to exercise caution in studying certain subjects. If you have concerns regarding your personal situation, consider postponing taking a course with manifest risks, until you are back on campus or reach out to your academic advisor to find substitute courses. For further information and support, please visit: http://academic.ubc.ca/support-resources/freedom-expression

Academic integrity and avoiding misconduct

The following is verbatim, with only some light modifications, from materials given to me by UBC's Dr. Catherine Rawn, speaking for the Department of Psychology and the Faculty of Arts:

In the academic community—a community of which you are now a part—we deal in ideas. That's our currency, our way of advancing knowledge. By representing our own and others' contributions in an honest way, we are (1) respecting the rules of this academic community, and (2) showcasing how our own novel ideas are distinct from but relate to their ideas. APA style gives us a formal way to indicate where our ideas end and where others' begin. But academic integrity goes well beyond formal citation. ***Welcome to the academic community. You are expected to act honestly and ethically in all your academic activities, just like the rest of us.***

Make sure you understand UBC's definitions of academic misconduct, consequences, and expectation that students must clarify how academic honesty applies for a given assignment. Please ask if you're not sure. (While you're checking out the calendar, you might want to check out the "Student Declaration and Responsibility" statement you agreed to when you registered.)

What does academic integrity look like in this course? *If at any time you are unsure if a certain type of assistance is authorized, please ask. If you have a need that is unmet by existing course materials, course structure, and/or our learning community members, please ask. In the meantime, here are some guiding principles for what academic integrity looks like:*

— Do your own work. *All individual work that you submit should be completed by you and submitted by you. All assessments, large and small, are designed to help you learn the material. It is unacceptable to use an editor (paid or unpaid) without my permission to revise, correct, or alter your work, because your submission is no longer your own work. It is unacceptable to buy/sell/swap/share assignment questions or answers on any platform. It is unacceptable to misrepresent your identity by using someone else to complete any portion of a course (e.g., comment on a discussion board, complete a quiz question). It is unacceptable to help someone else cheat.*

— Avoid collusion. *Collusion is a form of academic integrity violation that involves working too closely together without authorization, such that the resulting submitted work gains unfair advantage over other students because is a measurement of the group/pair/others' understanding rather than the individual understanding (definition adapted from OpenLearn). For example, collusion on a test includes working together to write answers or answering someone else's question in a WhatsApp chat. See more examples of collusion here. There are no assignments in this course that are the product of group collaboration, so please do not collaborate on any quizzes, exams, or projects. Preparing to individually complete an assignment or test by studying together (e.g., discussing concepts, quizzing each other and giving feedback on each others' answers) doesn't count as collusion.*

— Can I work with a classmate to co-create study notes? *Yes, you can create your own original collaborative notes.*

— Do not share materials provided for you to use in this course. *We are working hard to provide all the materials you need to succeed in this course. In return, please respect our work and the enormous efforts that went into making this class. All assignment instructions, quiz questions and answers, discussion questions, announcements,*

PowerPoint slides, audio/video recordings, Canvas modules, and any other materials provided to you by myself or the TAs are for use in this course by students currently enrolled in this course. It is unacceptable to share any of these materials beyond our course, including by posting on file-sharing websites (e.g., CourseHero, GoogleDocs). Please respect our intellectual property.

— Acknowledge others' ideas. *Scholars build on the work of others, and give credit accordingly—this is a quality of strong academic work. Citing sources in both formal and informal ways will be essential, and appropriate, depending on the assignment.*

— Learn to avoid unintentional plagiarism. *Visit the Learning Commons' guide to academic integrity to help you organize your writing as well as understand how to prevent unintentional plagiarism, which can be challenging when first learning to paraphrase. Visit http://learningcommons.ubc.ca/resource- guides/avoiding-plagiarism/. An example tip: Do not copy and paste text from other sources, including other people's work, even in a draft. It's easy to unintentionally misrepresent those words as your own in a later draft.*

UBC & PSYCHOLOGY DEPARTMENT GRADE DISTRIBUTION & SCALING

Faculties, departments and schools reserve the right to scale grades in order to maintain equity among sections and conformity to university, faculty, department or school norms. Students should therefore note that an unofficial grade given by an instructor might be changed by the faculty, department or school. Grades are not official until they appear on a student's academic record.

All psychology courses are required to comply with departmental norms regarding grade distributions, in order to reduce grade inflation and maintain equity across multiple course sections. The average grade in 100- and 200-level Psychology classes may range from 68 for a weak class, to 70 for an average class, and 72 for an exceptionally strong class, with a standard deviation of 14. The corresponding figures for 300- and 400-level classes will be 71, 73, and 75, with a standard deviation of 13. Scaling may be used in order to comply with these norms; grades may be scaled up or down as necessary by the professor or department. Grades are not official until they appear on a student's academic record.

A reminder on grading policy for BSc and upper level small-enrollment courses: e.g., PSYC 270, 277, 278, 312, 370, 371, 349, 449, 359, 417, 427, 460, 461, 462, 472. These courses may have average grades in the 80-81 range. That's because these students are from a competitive (selective-entry) BSc program, the Honours program, or they are students with a restricted range of high average grades prior to enrolment in the course. Standard deviations must remain in the 8-12 range, to preserve relative class standing in support of statements made about students in letters of reference and for awards. Scaling is likely to be used in order to comply with these norms; grades may be scaled up or down as necessary by the professor or department.