

PSYC*2410, Course Outline: Fall 2023

General Information

Course Title: Behavioural Neuroscience I

Course Description:

Can the human brain ever fully understand itself? Psychology and Neuroscience involve the scientific study of behaviour and the nervous system, respectively. In this course, we will consider both of these pursuits from the integrative perspective of biopsychology, or behavioural neuroscience. The ultimate effect of nervous system function is to produce and control behaviour. This course deals with the link between psychological processes and the brain. As such, we will consider evolutionary, genetic, anatomical, pharmacological, synaptic, neurochemical, and developmental bases of aspects of human and animal behaviour. Throughout, we will emphasize the behavioural relevance of the biological and physiological mechanisms under discussion.

Format: Lectures.

Due to the ongoing COVID-19 pandemic, some courses are being offered virtually and some face-to-face. **This course is being offered Face-to-Face: The course has a set day, time, and location of class. However, I will also livestream (see ZOOM links in CourseLink) and record all lectures.** For missed lectures (e.g., due to illness, the requirement to self-isolate, work, etc.), students are expected to take their own steps, such as arranging with other students to catch up on missed materials. A discussion board is available on CourseLink for students to share lecture notes, and specific questions about missed material can be emailed to the instructor or TAs. For missed exams and assignments, detailed policies are listed below in the Course Policies section. [Accessibility-related requests for accommodation should follow standard university procedures](#), and all other requests should follow [standard academic consideration policy and procedures](#).

Credit Weight: 0.5

Academic Department (or campus): Psychology

Semester Offering: F23

Class Schedule and Location: TTH, 4:00PM-5:20PM; ALEX 200

Instructor Information

Instructor Name: Dr. Boyer Winters

Instructor Email: bwinters@uoguelph.ca

Office location and office hours: MacKinnon Extension, Room 3005; ext. 52163; Meeting by arrangement; e-mail at all times

GTA Information

GTA Name: Anjana Varatharajah, Emily Minard, Heather Collett, Anita Sikic, Jessica Kespe

GTA Email: anjana@uoguelph.ca; eminard@uoguelph.ca; collett@uoguelph.ca; asikic@uoguelph.ca; jkespe@uoguelph.ca.

GTA office location and office hours: TBA; TAs will be available for online tutorial meetings (on request) and assignment review.

Course Content

Specific Learning Outcomes:

By the end of this course, successful students should be able to:

1. Identify gross anatomical structures of the mammalian brain and describe their basic functions.
2. Recognize various genetic and pharmacological factors that influence brain function and behaviour.
3. Critically evaluate various methods used to study the intersection between brain and behaviour.
4. Apply the above concepts to understanding the neural bases and possible therapies for human brain disorders.
5. Recognize the major neurobiological features of the mammalian sensory and motor systems.

Lecture Content:

Schedule of topics and dates.

The following is an outline of how the course will proceed. However, if necessary, I reserve the right to progress more slowly than indicated.

Sept 7	Chpt 1	Brief Orientation, questions and answers, introduction
Sept 12	Chpt 1/3	Introduction/Anatomy and Functions of the Central Nervous System

Sept 14	Chpt 3	Anatomy and Functions of the Central Nervous System
Sept 19	Chpt 3	Anatomy and Functions of the Central Nervous System
Sept 21	Chpt 3/2	Anatomy/Evolution
Sept 26	Chpt 2	Evolution
Sept 28	Chpt 2	Genetics of Behaviour
Oct 3	Chpt 2	Genetics of Behaviour
Oct 5	Chpt 4	Excitable Cell Membranes
Oct 10	No Class	Fall Break
Oct 12	*****	Midterm 1
Oct 17	Chpt 4	Neuronal Action Potentials/Synaptic Transmission
Oct 19	Chpt 4	Synaptic Transmission
Oct 24	Chpt 4, plus *NTS	Pharmacological and Genetic Manipulation of Behaviour
Oct 26	Chpt 4, plus *NTS	Pharmacological and Genetic Manipulation of Behaviour
Oct 31	Chpt 4, plus *NTS	Pharmacological and Genetic Manipulation of Behaviour
Nov 2	Chpt 4, plus *NTS	Pharmacological and Genetic Manipulation of Behaviour
Nov 7	Chpt 6/7	Visual System
Nov 9	Chpt 6	Visual System
Nov 14	*****	Midterm 2
Nov 16	Chpt 6	Visual System/Hearing
Nov 21	Chpt 7	Hearing/Touch/Smell

Nov 23	Chpt 11	Touch/Smell/Taste
Nov 28	Chpt 11	Learning, Memory, and Amnesia
Nov 30	Chpt 11	Learning, Memory, and Amnesia

***NTS = Neurotransmitters Supplement (B.D. Winters); see Required Texts, below.**

Labs: N/A

Seminars: N/A

Course Assignments and Tests:

Assignment or Test	Due Date	Contribution to Final Mark (%)	Learning Outcomes Assessed
Section Quizzes	All three quizzes must be completed no later than 11:59pm on Dec. 1, although I STRONGLY suggest completing them throughout the semester.	15%	1-5
Midterm #1	Oct 12, in class	25%	1-5
Midterm #2 (non-cumulative)	Nov 14, in class	25%	1-5
Final Exam (cumulative)	Dec 7, 2023, 2:30-4:30pm; Location TBA	35%	1-5
Optional Written Assignment	Dec 4, 11:59pm; use Dropbox in CourseLink	Potential to replace weight of MT1 or MT2 (25%)	2-4

Additional Notes:

Section Quizzes (15%): Section quizzes will consist of multiple-choice questions with relevance to approximately each third of the course. These will contribute to your overall grade (15%), as well as serving as valuable study exercises for the exams. As such, I recommend you try to complete each quiz (Section 1, Section 2, Section 3) prior to the relevant exam (Midterm 1, Midterm 2, Final exam). However, the only deadline for these is Dec 1. While this does mean you can wait

until the end of the semester to complete these quizzes, I do not recommend you do so. Also, please note that NO EXTENSIONS WILL BE GRANTED ON THE QUIZZES BEYOND THE FINAL DEADLINE OF Dec 1, 11:59PM. EMAILS REQUESTING SUCH AN EXTENSION WILL BE DELETED WITHOUT REPLY. Quizzes will be available from the beginning of the term in CourseLink. You will have **up to three attempts for each quiz**, and the highest grade from these attempts will be applied toward your overall mark in the course.

Midterms and final exam will be multiple choice and **in-person**. **Assuming no significant changes to campus-wide policy, online/remote exam options will NOT be offered.**

Optional Written Assignment (25%); Due in CourseLink Dropbox by 11:59pm on Dec 4: “Never mind the neurobollocks”. Students have the option to complete a written critical evaluation of a pop cultural representation of a neuroscience-related issue (e.g., the depiction of long-term memory loss in the movie “Memento”; tinnitus in “Baby Driver”). THIS PAPER IS NOT MANDATORY. If students choose to complete this assignment they will have the option to replace the lower of the two midterm grades. ***Please note that all students must still write both midterms; this optional assignment merely provides the opportunity to replace the lowest of your two midterm grades.***

THE FINAL EXAM GRADE CANNOT BE REPLACED.

This paper should be approximately 4-5 pages, double-spaced, plus a title page with your name and student ID (title page and reference list do not count towards page total). Your paper should include an introduction of the relevant neuroscience-related topic, a summary of the pop cultural representation being examined, and a critical comparison between the pop cultural representation and the scientific facts (as determined from your own research into the topic), as well as your conclusions about the accuracy of the pop culture representation. Keep in mind that “critical evaluation” does not necessarily mean negative; a well-reasoned and researched positive or balanced assessment will be just as likely to produce a good grade. A session will be held in class closer to the end of the semester to address student questions regarding this assignment, but you are welcome to approach me sooner with any thoughts you might have.

A grading rubric with full details for this assignment is posted in the ‘Content’ section of CourseLink.

Final examination date and time: Dec 7, 2023; 2:30-4:30pm; Location TBA

Final exam weighting: 35%

Course Resources

Required Texts:

1. J. Pinel (& S. Barnes). Biopsychology, 11th Edition. The “Revel” version of Biopsychology is an e-textbook with interactive elements and quizzes, which you are welcome to use as study tools; the “Revel” version of the textbook, which includes the quiz option is available from the bookstore. Please see the additional attachment in CourseLink for instructions on how to register for and access Revel (‘Revel access instructions’ on the ‘Content’ page). **However, you are not required to purchase this version of the textbook.** A non-Revel version of the same material is available directly from Pearson for less money at the following link: <https://www.pearson.com/en-ca/subject-catalog/p/biopsychology/P200000003027>. Note that this version will have less interactivity and no practice quiz option. You are also very welcome to buy a used version of any previous edition of the textbook you wish; this will not disadvantage you content-wise. **There are also several hard copies on reserve in the library.**
2. Neurotransmitters Supplement: B.D. Winters. Neurotransmitter Systems and Behavior. Provided as a pdf on CourseLink (in ‘Content’). This is provided as extra material to complement and extend Pinel & Barnes **Chapter 4**; it is essential reading for this section of the course.

Recommended Texts:

Lab Manual: N/A

Other Resources:

Web site: lecture notes will be available online before each class. Just login to CourseLink using your U of G email username and password.

Instructor – Student Communication: You can email me at any time. I will set up an e-mail class list that I will use to communicate important information to you (e.g., exam marks). I will use your U of G email address as default.

Field Trips: N/A

Additional Costs: N/A

Course Policies

Grading Policies

If you miss an exam, please inform me AS SOON AS POSSIBLE, so that a make-up can be arranged.

Course Policy on Group Work: N/A

Course Policy regarding use of electronic devices and recording of lectures:

Electronic recording of classes is expressly forbidden without consent of the instructor. When recordings are permitted, they are solely for the use of the authorized student and may not be reproduced, or transmitted to others, without the express written consent of the instructor.

University Policies

Academic Consideration

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor in writing, with your name, id#, and e-mail contact. See the academic calendar for information on regulations and procedures for Academic Consideration:

[Academic Consideration, Appeals and Petitions](#)

Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community, faculty, staff, and students to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring.

University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection. Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar:
[Academic Misconduct Policy](#)

Accessibility

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact Student Accessibility Services as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 56208 or email accessibility@uoguelph.ca or see the website: [Student Accessibility Services Website](#)

Course Evaluation Information

Please refer to the [Course and Instructor Evaluation Website](#) .

Drop date

The last date to drop one-semester courses without academic penalty is December 1st. For regulations and procedures for Dropping Courses, see the Academic Calendar:
[Current Undergraduate Calendar](#)