

PSYC*2410, Course Outline: Fall 2021

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, and students are required to be on campus.** 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. 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: F21

Class Schedule and Location: T/TH, 1:00PM-2:20PM; ROZH 101

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: Siyao Peng, Anita Sikic, and Megan Shaver

GTA Email: speng03@uoguelph.ca; sikica@uoguelph.ca; mshave01@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 9	Chpt 1	Brief Orientation, questions and answers, introduction
Sept 14	Chpt 1/3	Introduction/Anatomy and Functions of the Central Nervous System
Sept 16	Chpt 3	Anatomy and Functions of the Central Nervous System
Sept 21	Chpt 3	Anatomy and Functions of the Central Nervous System
Sept 23	Chpt 2	Evolution

Sept 28	Chpt 2	Evolution/Genetics of Behaviour
Sept 30	Chpt 2	Genetics of Behaviour
Oct 5	Chpt 2	Genetics of Behaviour
Oct 7	Chpt 2	Genetics of Behaviour
Oct 12	No Class	Fall Break
Oct 14	Chpt 4	Excitable Cell Membranes
Oct 19	Chpt 4	Neuronal Action Potentials
Oct 21	Chpt 4	Synaptic Transmission
Oct 26	Chpt 4, plus *NTS	Pharmacological and Genetic Manipulation of Behaviour
Oct 28	Chpt 4, plus *NTS	Pharmacological and Genetic Manipulation of Behaviour
Nov 2	Chpt 4, plus *NTS	Pharmacological and Genetic Manipulation of Behaviour
Nov 4	Chpt 4, plus *NTS	Pharmacological and Genetic Manipulation of Behaviour
Nov 9	Chpt 6/7	Visual System
Nov 11	Chpt 6	Visual System
Nov 16	Chpt 6	Visual System
Nov 18	Chpt 7	Hearing/Touch/Smell
Nov 23	Chpt 7	Touch/Smell/Taste
Nov 25	Chpt 11	Learning, Memory, and Amnesia
Nov 30	Chpt 11	Learning, Memory, and Amnesia
Dec 2	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
Revel Quizzes (End-of-Chapter quizzes for Chapters 1, 2, 3, 4, 6, 7, 11 in Pinel & Barnes textbook)	Throughout semester; All Quizzes should be completed absolutely no later than Dec 3 11:59pm.	15%	1-5
Neuroanatomy Essay (see description below)	By 11:59pm on Oct 13; Dropbox in CourseLink	25%	1, 3, 4, 5
Essay #2 – Pop culture critique (see description below)	By 11:59pm on Nov 10; Dropbox in CourseLink	25%	2-4
Final Exam (cumulative)	Assigned Nov 26; Due by 11:59pm on Dec 3 in Dropbox on CourseLink	35%	1-5

Additional Notes:

Revel Quizzes (15%): Throughout the semester. Students must complete the Chapter quizzes found at the end of each assigned chapter in the Pinel & Barnes textbook (Chapters 1, 2, 3, 4, 6, 7 and 11). Note: only the **End-of-Chapter (EOC) quizzes** will contribute to the final grade; end-of-module (EOM) quizzes and all other textbook activities are up to your discretion and can be done for practice and exam preparation if you wish. The EOC quizzes should be completed through Revel/CourseLink as you read through the relevant chapters during the semester; you can access the quizzes directly from within Revel or through CourseLink in the 'Pearson Revel' tab on the 'Contents' page. **All assigned EOC quizzes must be completed by no later than 11:59pm on Dec 3, 2021.**

Neuroanatomy Essay (25%): **Due in relevant Dropbox by 11:59pm on Oct 13.** What's your "favourite" brain region? Within the first few weeks of the semester, we will have discussed several systems and regions within the brain. Many of these are intriguing because of their fascinating organization and/or links to essential behavioural functions. For this assignment, you will write a **1500-to-2000-word essay** describing the following:

- A) The basic neuroanatomical features of your "favourite" brain area or system.
- B) The behavioural functions in which it is implicated.
- C) Any related disease or disorder linked to the dysfunction of this region.
- D) Why it is your "favourite".

*A grading rubric for this assignment is posted in the 'Content' section of CourseLink.

Essay #2: "Never Mind the Neurobollocks: a critique of neuroscience representation in popular culture" (25%): **Due in relevant Dropbox by 11:59pm on Nov 10.** Students will 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 should be approximately 4-5 pages, double-spaced, plus a title page with your name and student ID. Your paper should include an introduction to 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 yield 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 or enquiries you might have.

*A grading rubric for this assignment is posted in the 'Content' section of CourseLink.

Final Exam (35%): The final exam will be a "take-home" test consisting of short answer questions related to the content of the entire course. **Questions will be made available on Nov. 26, and the final answers will be due in the relevant Dropbox on CourseLink by 11:59pm on Dec 3.** More information will be provided closer to the deadline.

Final examination date and time:

Questions assigned for "take-home" exam on Nov 26. Answers due in Dropbox by 11:59pm on Dec 3.

Final exam weighting: 35%

[Examination Regulations](#)

Course Resources

Required Texts:

1. J. Pinel & S. Barnes. Revel Biopsychology, 11th Edition. This is an e-textbook with interactive elements and quizzes, some of which are essential aspects of the course evaluation ('Revel Quizzes'); others will be excellent study tools. All students must have a copy of this text. Please see the additional attachment in CourseLink for instructions on how to register for and access Revel ('Revel access instructions' on the 'Content' page).
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.

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

Late assignments without prior consent will be subject to a penalty of 15% grade deduction per day.

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

Disclaimer: Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings and academic schedules. Any such changes will be announced via CourseLink and/or class email. All University-wide decisions will be posted on the COVID-19 website and circulated by email.

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 Dec. 03, 2021. For regulations and procedures for Dropping Courses, see the [Schedule of Dates in the Academic Calendar](#).

Instructors must provide [meaningful and constructive feedback, at minimum 20% of the final course grade, prior to the 40th class day](#). For courses which are of shorter duration, 20% of the final grade must be provided two-thirds of the way through the course.

[Current Undergraduate Calendar](#)