



**PSYO 230 - 001**

**Biopsychology of Behaviour**

2023-2024 Winter Term I

Tuesday and Thursday 1530 to 1700, COM201/hybrid

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*Welcome to Biopsychology of Behaviour!*

*I am looking forward to getting to know each of you while we explore the brain and select experiments in the field. My aim is to provide an engaging, respectful class environment where each student can practice critical thinking to further their understanding of the provided material.*

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***Email policy: All queries and discussion pertaining to course material, schedule, and evaluation criteria are to be directed to the Canvas discussion page, as many other students may have similar questions as you. These discussions are moderated by myself and the TAs. Any emails containing above-noted queries will not be responded to. The last day to ask questions before deadlines (e.g., midterms, the final assignment) is 2 business days prior to the deadline or we cannot guarantee a response.***

***Only emails pertaining to topics of a personal nature and academic accommodations will be reviewed. If you are emailing, you are required to put the course code ("PSYO 230") in the subject line, or you will not receive a response.***

**Course Overview, Content, and Objectives**

This course will provide you with fundamentals of biopsychology and exposure to cutting edge research in the field. With respect to research, the emphasis will be placed on recent work and experiments that expand upon fundamental topics covered in classic lecture format, due to their applicability to research experience and will provide exposure to various research techniques.



The course will explore: basic neuroanatomy, vision, sensation and perception, movement, learning and recovery, language and lateralization, and sleep. We will also cover neurological disorders and how such functions are disrupted after neurological injury. Class time will be divided between lectures, discussion activities, and presentations of cutting-edge experiments provided by researchers in the relevant fields.

### **COURSE DELIVERY:**

**Course delivery will occur via a hybrid model, with some lectures delivered asynchronously, and some live (that are also recorded and posted). Students who are unable or who choose not to attend in person can fully complete this course.**

**Please refer to the syllabus for the course schedule. Any changes related to course delivery will be announced and/or emailed. The syllabus will be updated to reflect any and all changes made to the course schedule.**

**Please note: research (guest) lectures will NOT be recorded as these are research focused talks with material that is often new and in the process of being published. If you are unable to attend live, please ask a classmate for notes. A TA will also be present to take high level, general, notes for students who were unable to attend the lecture.**

### **Learning Outcomes**

*Grounded in the Department of Psychology's 5 Program Learning Outcomes, this course is heavily focused on 1) establishing **Knowledge Base**, 2) developing **Scientific Inquiry and Critical Thinking Skills**, and 3) developing **Communication Skills** (encompassing scientific writing and teamwork). Below is a table that shows a breakdown of specific course learning outcome, how it is assessed, and which Program Learning Outcome it is aligned with.*

<b>Course Learning Outcome</b>	<b>Assessment</b>	<b>Program Learning Outcome</b>
<i>Identify and recognize</i> main areas of the brain and components of the central nervous system	Multiple choice	<i>Knowledge Base</i>
<i>Describe</i> different brain systems, and the consequences on behaviour function when unique systems are disrupted	Multiple choice, short answer	<i>Knowledge Base</i>
<i>Apply</i> knowledge of the Research Ethics Board, to <i>evaluate</i> the ethics of a proposed research study	Multiple choice, short answer, group discussion (and associated mini-assignments)	<i>Scientific Inquiry and Critical Thinking Skills</i> <i>Ethical and Social Responsibility</i>
<i>Compare and contrast</i> at least two research methods used to explore the brain	Short answer, group discussion (and associated mini-assignments), written group assignment	<i>Knowledge Base, Communication</i>



<i>Read and analyze</i> academic articles	Written group assignment	<i>Scientific Inquiry and Critical Thinking Skills, Communication</i> <i>Professional development</i>
<i>Reflect on and appraise</i> study design and conceptualization, and identify a key research question that addresses a gap in the literature	Group discussion (and associated mini-assignments), written group assignment	<i>Scientific Inquiry and Critical Thinking Skills, Communication</i>
<i>Reflect on</i> exemplar experiments conducted to advance our understanding of neuroscience	Group discussion (and associated mini-assignments)	<i>Scientific Inquiry and Critical Thinking Skills</i>
<i>Explore</i> careers related to the field of psychology	Multiple choice, short answer	<i>Professional development</i>

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### **Evaluation Criteria and Grading (5):**

- 1) **Exam #1 (25% of grade).** The exam will cover: Foundations, Sensation and Perception, and Vision, including all lecture and textbook material. Methodological material related to Neuroimaging will also be included. The exam will be in multiple-choice and brief written format. Only guest lecture material that overlaps with lecture/textbook material will be included.
- 2) **Exam #2: (25% of grade).** The exam will cover Movement, Learning, Language & lateralization, and Sleep, including all lecture and textbook material. Methodological material related to Neurophysiology will also be included. The exam will be in multiple-choice and brief written format. Only guest lecture material that overlaps with lecture/textbook material will be included.
- 3) **Class-based Assignments (20%).** These assignments are based on *in class interactive/discussion activities* and the *research lectures*. Each assignment is due at 330PM the following day (i.e., the day after the in-class discussion/guest lecture). These are designed to spark reflection, and discussion.
- 4) **Final assignment (30%).** This is a group assignment and will build upon class-based assignments and activities completed over the course of the semester. Further details related to this assignment will be released early/mid-March. There is no final exam for this course.
- 5) **SONA/Research activity (2% Bonus).** See below for explanation of how to participate in SONA.

**No additional or alternative opportunities for credit will be provided for fairness amongst all students.**



### Course Schedule, Required Readings

The textbook used alongside this course is *Discovering Behavioral Neuroscience: An Introduction to Biological Psychology* by L. Freberg (4e) ISBN 9781337570961. The MindTap bundle is optional as this may be helpful to your learning but not required to complete the course.

**Note: This schedule is subject to change. It is your responsibility to attend class, monitor Canvas, and be aware of any changes that occur. Links to supplementary readings and activities can be found on Canvas → Modules.**

	Topics	Reading	Assignment	Format
Tues. Sept 5	Course overview and introduction	Syllabus	-	In person
Thurs. Sept 7	Foundations 1	Ch 1 pgs 2-7,19, 23-28 Ch 2 pg 28-54 Ch 3	-	<b>asynchronous</b>
Tues. Sept 12	Foundations 2		Class-based assignment #1	In person/recorded
Thurs. Sept 14	Foundations 3			<b>asynchronous</b>
Tues. Sept 19	Sensation and perception	Ch 6	Class-based assignment #2	In person/recorded
Thurs. Sept 21	Sensation and perception			<b>asynchronous</b>
Tues. Sept 26	Vision & perception research lecture – Dr. Matthew Scott, the University of British Columbia		Class-based assignment #3	<b><u>LIVE ONLINE</u></b>
Thurs. Sept 28	Vision	Ch 7	-	<b>asynchronous</b>
Tues. Oct 3	Neuroimaging essentials	Ch 1 pg 12-17	Class-based assignment #4	In person/recorded
Thurs. Oct 5	What is knowledge synthesis? – Exam #1 prep	-		In person/optional
<b>Tues. Oct 10</b>	<b>Exam #1 (25%)**</b>			<b>**LIVE via Canvas. Remote or in-person option**</b>
Thurs. Oct 12	Neuroimaging research lecture – Dr. Jennifer Ferris, Simon Fraser University		Class-based assignment #5	<b><u>LIVE ONLINE</u></b>
Tues. Oct 17	Language & lateralization	Ch 11 pg 376-406	Class-based assignment #6	In person/recorded
Thurs. Oct 19	Movement	Ch 8		<b>asynchronous</b>
Tues. Oct 24	Neurophysiology essentials	Ch 1 pg 17/18	Class-based assignment #7	In person/recorded
Thurs. Oct 26	Learning	Ch 12 pg 416-447	-	<b>asynchronous</b>



Tues. Oct 31	Motor learning research lecture – Theresa Gaughan, Dalhousie University		Class-based assignment #8	<b><u>LIVE ONLINE</u></b>
Thurs. Nov 2	Sleep	Ch 11 pg 376-406	-	<b>asynchronous</b>
Tues. Nov 7	Final assignment-related activities			In person/recorded
Thurs. Nov 9	<i>TA lecture – Exam #2 prep</i>			<i>In person/optional</i>
Tues. Nov 14	<b>READING WEEK</b>	-	-	-
Thurs. Nov 16	<b>READING WEEK</b>	-	-	-
<b>Tues. Nov 21</b>	<b>Exam #2 (25%)**</b>			<b>**LIVE via Canvas. Remote or in-person option**</b>
Thurs. Nov 23	Neurocognitive disorders and rehabilitation	Ch 15 pg 524-534,		<b>asynchronous</b>
Tues. Nov 28	Neurocognitive disorders and rehabilitation	540-553	Class-based assignment #9	In person/recorded
Thurs. Nov 30	<i>Final assignment work period</i>			<i>In person/optional</i>
Tues. Dec 5	(Health) careers related to the field of biopsychology	-	Class-based assignment #10	In person
Thurs. Dec 7	Research technique demonstration – <i>the Neuroplasticity Imagery and Motor Behaviour Lab</i> ; Review and conclusions			<i>In person/optional</i>

***\*\*you can request a paper and pen version of the exam if you are writing at the DRC or writing in the lecture hall***

Reminder: All class-based assignments are due at 330PM the following day.



### RESEARCH ACTIVITY (2% BONUS)

This course allows for 2% bonus to be added to your final grade. This requirement may be fulfilled either through direct participation in research through the SONA volunteer subject pool (Option 1), by completing two written summaries of primary research articles (Option 2), or by a combination of the two types of activities.

#### Research Participation (Option 1)

##### (SONA RESEARCH ACTIVITY)

Students earn Sona credit points for their eligible courses from participating in research activity. This can be either through direct participation in research through the Sona online research system (Option 1), by completing summaries of primary research articles (Option 2), or by a combination of the two types of activities. First year courses (i.e., PSYO 111 and PSYO 121) include 4% as part of the final course grade for participating in Sona research activity, while second year and higher courses allow for a 2% bonus to be added to the final course grade for participating.

As a participant in one of the numerous research studies posted at <http://ubco.sona-systems.com/>, you will obtain 0.5% credit for each 0.5 hour of participation. Hence, studies requiring a 1-hour time commitment provides a credit of 1%, 1.5 hours provides a credit of 1.5%, and 2 hours provides a credit of 2.0%, etc.

##### *Important Requirements*

You may participate in more than one study in order to earn credits. It is important to sign up for studies early in the semester in order to increase the odds that a timeslot is available. If you wait until later in the semester, timeslots may no longer be available.

##### *Logging On To The System*

Sona is only open for those students who are registered in a psychology course offering Sona credit points. Please only use the request account option if you have never used the Sona system before. If you have used the Sona system before, please use the most recent login information you remember to log in.

##### *Missed Appointments & Penalties*

Missed appointments (i.e., failure to cancel the appointment at least 3 hours prior to the session) will be tracked. The consequence will be that you will not receive credit for participation in the study and you will be assigned an unexcused no-show. The unexcused no-show designation will cause you to lose the credit value of the study from the total possible credit points you can earn for your course. For example, if you are in PSYO 111 (or 121), you can earn up to 4.0 credits. If you miss an hour-long session that you signed up for (i.e., 1.0 credit) and don't cancel it in advance, the maximum credits that you can now earn for your course is 3.0, regardless of how many studies you complete.

If, after consenting to participate and starting a session (or survey), you decide to withdraw your consent, to avoid receiving an unexcused no-show on Sona, you must do one of the following:

- if it is an online study, you must cancel your Sona sign-up and/or contact Shirley ([psyc.ubco.research@ubc.ca](mailto:psyc.ubco.research@ubc.ca)) if you are unable to cancel your sign-up;
- if it is an in-person study, you must let the researcher know directly. Their email can be found on the main description page for the study (little envelope icon). Depending upon the study, they will either cancel your session or assign you an excused no-show (meaning that you will not be penalized).

Your ability to withdraw your data will depend upon the study. Instructions for withdrawing your data (including limitations) will be described in the study's consent form.



Please email [psyc.ubco.research@ubc.ca](mailto:psyc.ubco.research@ubc.ca) with any questions or concerns that you may have regarding the Sona system. Your professor or instructor does NOT have access to this information.

### **Research Summary Assignment (Option 2)**

As an alternative to participating in research studies, you may obtain Sona credit points by completing library-writing projects to a satisfactory level. Each library-writing project is worth a total of two credits.

#### *Important Requirements*

1. This project consists of reading and summarizing (in written form) a recent, peer-reviewed, primary research article.
  - A “recent” article has been published within the past 12 months.
  - A “peer reviewed” article is one that has been reviewed by other scholars before it is accepted – for example, it **cannot** be a news item, an article from a popular magazine, a notice, or a letter to the editor.
  - A “primary” research article describes an experiment or study where data are collected by the authors. In other words, the article you choose to review **cannot** be a book review, literature review, or summary article.
2. You must choose an article published by one of the following agencies:
  - The American Psychological Society - *Psychological Science*, *Current Directions in Psychological Science*, *Psychological Science in the Public Interest*, or *Perspectives on Psychological Science*.
  - The American Psychological Association - [www.apa.org/journals/by\\_title.html](http://www.apa.org/journals/by_title.html) has a full listing.
  - The Canadian Psychological Association - *Canadian Psychology*, *Canadian Journal of Behavioural Science*, or *Canadian Journal of Experimental Psychology*.
  - The Psychonomic Society - *Behavior Research Methods, Cognitive, Affective, & Behavioral Neuroscience*, *Learning & Behavior*, *Memory & Cognition*, *Perception & Psychophysics*, or *Psychonomic Bulletin & Review*.
  - *Nature* (or any nature sub-journal, such as *Nature Human Behaviour*, *Scientific Reports*)
  - *Neuroimage*
  - *Journal of Experimental Psychology* (and any of its sub-journals, such as *Human Perception and Performance*)
  - *Journal of Cognitive Neuroscience*
  - *Acta Psychologica*
  - *Brain*
  - *Brain Research*
  - *Behavioural Brain Research*
  - *Behavioural Neuroscience*
  - *Neurorehabilitation and Neural Repair*
  - **Should you wish to choose an article in a journal not listed here, you are required to seek Dr. Kraeutner’s approval.**

#### 3. Other Assignment Guidelines

The summary should be about 300-500 words in length. The source must be cited and referenced in accordance with the *Publication Manual of the American Psychological Association*. The review will be graded on a pass – fail basis (2% or 0%). At least **14 days before the end of classes** each term, submit the following to the course instructor:



- the article summary
- a copy of the article
- a cover page that specifies your name, student number, email address, and word count of the summary.
- the course title and number

Submitting the assignment 14 days in advance is necessary to ensure that you have an opportunity to make corrections, if required. If you do not check your email frequently, provide a phone number on the cover page.

**UBC Okanagan Disability Resource Centre:**

The Disability Resource Centre ensures educational equity for students with disabilities and chronic medical conditions. If you are disabled, have an injury or illness and require academic accommodations to meet the course objectives, please contact Earllene Roberts, the Diversity Advisor for the Disability Resource Centre located in the University Centre building (UNC 214). UNC 214 250.807.9263

Email [earllene.roberts@ubc.ca](mailto:earllene.roberts@ubc.ca)

Web: [www.students.ok.ubc.ca/drc](http://www.students.ok.ubc.ca/drc)