WESTERN UNIVERSITY
LONDON CANADA

Department of Psychology
Winter 2026-27

Psychology 2220 A Section 001

INTRODUCTION TO BEHAVIOURAL AND COGNITIVE NEUROSCIENCE

1 Calendar Description

An introduction to the structure and function of the nervous system in relation to behaviour in humans (cognitive neuroscience) and other animals (behavioural neuroscience). Topics covered include: brain anatomy, neuronal function, drugs & addiction, research methods, sensory perception & motor actions, learning & memory, cognition, and neurological & psychiatric disorders.
https://www.registrar.uwo.ca/academics/timetables.html

Antirequisites: Neuroscience 2000, Psychology 2221A/B
Prerequisites: A mark of at least 60% in 1.0 credits of Psychology at the 1000 level. A background in biology is strongly recommended.

3 lecture hours
Course Weight: 0.5

Unless you have either the prerequisites for this course or written special permission from your Dean to enrol in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

2 Course Information

Instructor:	Prof. Jody Culham
Office & Phone:	WIRB 4118
Office Hours:	By request
Email:	jculham@uwo.ca

Teaching Assistant:	TBA
Office:	TBA
Office Hours:	TBA
Email:	TBA

Time and Location of Classes: In-Person. Tuesdays, 2:30-5:30 pm. Location TBA.

For courses that include an online component, students must have a reliable internet connection and computer that are compatible with online learning system requirements.

3 Course Materials

Watson, NV & Breedlove, SM. *The Mind's Machine: Foundations of Brain and Behaviour*. 5th Edition. Oxford University Press.

The text is required for the course and is available through the campus bookstore in paperback ($198) or electronic versions ($95). If you purchase an e-book, be sure that the source provides content for the entire four months of the course (not just 90 days).

https://bookstore.uwo.ca/textbook-search?campus=UWO&term=W2026B&courses%5B0%5D=001_UW/PSY2220B

In addition, the lecture on Evolution will be supplemented by Chapter 6: Evolution of Brain and Behavior from the following textbook by the same authors:
Breedlove, SM & Watson, NV *Behavioral Neuroscience*. 10th Edition. Oxford University Press.
The chapter is available through Western course readings at no extra charge.

https://coursereadings.lib.uwo.ca/ares/

4 Course Objectives and Learning Outcomes

Learning Outcome	**Learning Activity**	**Assessment**
Depth and Breadth of Knowledge • Learn how the nervous system works at the macro (anatomical) and micro (neural) scales. • Understand the function of components of the central and peripheral nervous systems. • Learn how the nervous system evolves and develops. • Understand "the big picture" of how brains use sensory input and cognitive processing to choose and modify actions based on anticipated and actual consequences in the environment. • Develop a sense of wonder and appreciation for the sophistication of the brain.	Lectures Quizzes	Quizzes Exams
Knowledge of Methodologies • Understand foundational experimental approaches used in neuroscience research.	Lectures Quizzes	Quizzes Exams

• Interpret evidence from various techniques and species to understand central and peripheral nervous system function.		
Application of Knowledge • Apply knowledge to understand the links between brain and behaviour in healthy brains and in cases of psychopathology and brain disorders.	Lectures Quizzes	Quizzes Exams
Communication Skills • Ask questions to clarify gaps in understanding and extend knowledge	Asking questions and participating in discussions	
Awareness of Limits of Knowledge • Begin to understand the challenges of understanding the complexity of the brain	Lectures	

5 Evaluation

Weekly Online Quizzes	(Best 10 of 12)	20%
Midterm Examination		40%
Final Examination		40%

1. **Weekly online quizzes**. Students will complete exercises and quizzes online after the lecture but before the next class. The quizzes are open book.
2. The **midterm exam** will be during the regular class meeting time. It will cover materials from lectures 1-6 and will contain multiple choice and short-answer questions.
3. The **final exam** will be scheduled during the April exam period. It will cover material from lectures 7-12 and will contain multiple choice and short-answer questions.

Quiz and exam questions will be based on lecture content, reinforced by readings, videos, and practice questions from the textbook. Lecture content will include material that is not in the textbook. Students who skip classes will be at a strong disadvantage for test performance. The final exam will <u>not</u> explicitly test material from the first half of the course; however, material in the second half of the course builds on the foundational understanding developed in the first half.

The evaluation and testing formats for this course were created to assess the learning objectives as listed in section 4 and are necessary for meeting these learning objectives

Policy on Missing Coursework

The online quizzes allow flexibility in assessment as the best 10 of 12 scores will be used to compute the grade and students will have five days to complete them. Quizzes not completed within the five-day window will be given a grade of zero.

The midterm exam is a "designated assessment". As such, students cannot apply an undocumented absence.

Final exams (scheduled by the registrar) are exempt from undocumented absences.

Refer to this link for guidance:
https://registrar.uwo.ca/academics/academic_considerations/index.html

The Psychology Department follows Western's grading guidelines:
https://www.uwo.ca/univsec/pdf/academic_policies/general/grades_undergrad.pdf

The expectation for course grades within the Psychology Department is that they will be distributed around the following averages:

70%	1000-level to 2099-level courses
72%	2100-2999-level courses
75%	3000-level courses
80%	4000-level courses

In the event that course grades are significantly higher or lower than these averages, instructors may be required to make adjustments to course grades. Such adjustment might include the normalization of one or more course components and/or the re-weighting of various course components.

A+	90-100	One could scarcely expect better from a student at this level
A	80-89	Superior work that is clearly above average
B	70-79	Good work, meeting all requirements, and eminently satisfactory
C	60-69	Competent work, meeting requirements
D	50-59	Fair work, minimally acceptable
F	below 50	Fail

Policy on Grade Rounding

Please note that although course grades within the Psychology Department are rounded to the nearest whole number, no further grade rounding will be done. No additional assignments will be offered to enhance a final grade; nor will requests to change a grade because it is needed for a future program be considered.

6 Assessment/Evaluation Schedule

Midterm exam: In-class, Tuesday February 23, 2:30-5:30 pm
Final exam: Exam period (April 12-30), Scheduled by registrar

7 Class Schedule

	DAY	DATE	TOPIC	CH.	WT.
1	Tues.	Jan. 5	Course Introduction and Expectations: Why are brains fascinating? How can we learn about brains?	Intro	
2	Tues.	Jan. 12	What are brains? What are the major structures of the central and peripheral nervous system? How can we measure brain function in humans and other animals? (Neuroanatomy)	1	
3	Tues.	Jan. 19	How do neurons work? (Neurophysiology)	2	
4	Tues.	Jan. 26	How do neurons communicate? How do drugs affect the brain? (Neurochemistry)	3	
5	Tues.	Feb. 2	How do hormones affect brain and behaviour (Hormones and Sex) Career advice: Getting involved in research	8	
6	Tues.	Feb. 9	How did brains evolve? (Brain Evolution) How do brains develop? (Neurodevelopment)	4	
	Tues.	**Feb. 16**	**READING WEEK (No Class)**		
	Tues.	**Feb. 23**	**IN-CLASS MIDTERM (Designated Assessment)**		**40%**
7	Tues.	Mar. 2	How do brains take in information? (Senses); Midterm #1 Review	7, 6, 5.1	
8	Tues.	Mar. 9	Senses – continued. How do brains send out information to control the body? (Motor Control)	5.3	
9	Tues.	Mar. 16	How do brains learn and remember? (Learning and Memory)	13	
10	Tues.	Mar. 23	How do cognitive functions lead to more complex behaviours? (Cognition, Emotion and Language)	14, 11, 15	
11	Thurs.	Mar. 30	How do brains regulate the internal environment? (Homeostasis) How do brains maintain biological rhythms? Why do brains need sleep? (Biological Rhythms and Sleep)	9,10	
12	Tues.	Apr. 6	What can go wrong with the brain? (Psychopathology)	12	
		TBD	**FINAL EXAM (Apr 12-30)**		**40%**

8 Academic Integrity

Scholastic offences are taken seriously, and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site: https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

Possible penalties for a scholastic offence include failure of the assignment/exam, failure of the course, suspension from the University, and expulsion from the University.

Statement on Use of Electronic Devices

No electronic devices will be allowed during midterm and final examinations.

Devices may be used during class and weekly quizzes.

Multiple Choice Exams

Computer-marked multiple-choice tests and/or exams will be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

9 Academic Accommodations and Accessible Education

View Western's policy on academic accommodations for student with disabilities at this link.

Accessible Education provides supports and services to students with disabilities at Western. If you think you may qualify for ongoing accommodation that will be recognized in all your courses, visit Accessible Education for more information. Email: aew@uwo.ca Phone: 519 661-2147

10 Absence & Academic Consideration

Academic Considerations:
https://registrar.uwo.ca/academics/academic_considerations/index.html

11 Other Information

- Office of the Registrar: https://registrar.uwo.ca
- Student Development Services: www.sdc.uwo.ca
- Psychology Undergraduate Program: https://www.psychology.uwo.ca/undergraduate/index.html

Students who are in emotional/mental distress should refer to Health and Wellness@Western https://www.uwo.ca/health/ for a complete list of options about how to obtain help.
Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you.

If you wish to appeal a grade, please read the policy documentation at: https://www.uwo.ca/univsec/pdf/academic_policies/appeals/appealsundergrad.pdf. Please first contact the course instructor. If your issue is not resolved, you may make your appeal in writing to the Undergraduate Chair in Psychology (psyugrd@uwo.ca).

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