

WESTERN UNIVERSITY
LONDON CANADA

Department of Psychology
Fall 2026

Psychology 3224A Section 200

Neuropsychology and Cognitive Neuroscience

1 Calendar Description

Neural mechanisms in human perception, spatial orientation, memory, language, and motor behavior.

Antirequisite(s): Psychology 3227A/B.

Prerequisite(s): Both Psychology 2801F/G (or one of Health Sciences 2801A/B, Psychology 2840F/G, Psychology 2855F/G) and Psychology 2811A/B (or one of Biology 2244A/B, Economics 2122A/B, Economics 2222A/B, Geography and Environment 2210A/B, Health Sciences 3801A/B, MOS 2242A/B, Psychology 2830A/B, Psychology 2850A/B, Sociology 2205A/B, Statistical Sciences 2035, Statistical Sciences 2141A/B, Statistical Sciences 2143A/B, Statistical Sciences 2244A/B, Statistical Sciences 2858A/B, the former Social Work 2207A/B), or the former Psychology 2820E, or both the former Psychology 2800E and the former Psychology 2810, and one of Psychology 2220A/B, Psychology 2221A/B or Neuroscience 2000.

Extra Information: 3 lecture/discussion hours (blended format, divided between online content and in-person class time)

Course Weight: 0.50

Unless otherwise stated, students are responsible for ensuring that they have successfully completed all prerequisites prior to enrolling. Where prerequisites have not been met, the instructor may require the student to withdraw from the course. In accordance with Western policy, this decision is not subject to appeal.

In the event of a discrepancy between this outline and Senate or University policies, the latter shall prevail. The instructor reserves the right to modify elements of this course outline for pedagogical or operational reasons. Any such changes will be communicated to students in a timely manner.

2 Course Information

Instructor: Dr. Laura Batterink
Office & Phone: Western Interdisciplinary Science Building 6124, x85409
Office Hours: Friday, 11-12 PM (held on Zoom) or by appointment
Email: lbatter@uwo.ca

Teaching Assistant: TBD
Office:
Office Hours:
Email:

Time and Location of Classes: Blended Format. Monday 2:30 – 4:30 PM, WIRB 1170

3 Course Materials

Required: Marie Banich & Rebecca Compton. (2023). *Cognitive Neuroscience*. Cambridge University Press. 5th edition.

The physical copy of the text is available through the Western bookstore, listed at \$98.90:
<https://bookstore.uwo.ca/product/9781108926386>

Alternatively, a 180-day Ebook rental is available through the Western bookstore, listed at \$78.00:
<https://bookstore.uwo.ca/product/9781108918480r>

4 Course Objectives and Learning Outcomes

1. *To familiarize students with the human mind as a phenomenon whose biological basis can be studied in scientific research; to explore and appreciate the limits of current scientific knowledge in the field.*
2. *To provide a comprehensive overview of the methodology, research findings, theories, and contentious issues in the study of cognitive neuroscience.*
3. *To encourage the reading of primary source material on research in cognitive neuroscience; to encourage critical thinking and discussion of contentious issues.*

*Any course of this sort contains material that must be learned from both lectures and readings. Some material from the text will not be covered in lectures; similarly, some material from the lectures will not be covered in the readings. **Therefore, it is necessary that students view the prerecorded lectures, attend class sessions, and do the readings regularly for successful completion of the course.***

Learning Outcome	Learning Activity	Assessment
<i>Depth and Breadth of Knowledge.</i> • Explain major concepts, theoretical	Pre-recorded lectures	Tests

perspectives, empirical findings, and historical trends in neuropsychology and cognitive neuroscience - Describe the basic anatomical/functional systems of the human brain, including sensory, motor, language, executive function, memory systems - Define key concepts that characterize cognitive neuroscience as a field of scientific inquiry	Assigned textbook readings Assigned primary article readings Tutorial/discussion sessions	Final exam
<i>Knowledge of Methodologies.</i> Understand the strengths and limitations of various cognitive neuroscience methodologies, and how these methods contribute to the current state of knowledge in this field	Pre-recorded lectures Assigned textbook readings Assigned primary article readings Tutorial/discussion sessions	Tests Final exam
<i>Application of Knowledge.</i> Apply basic research methods in psychology to investigate cognitive neuroscientific questions. Identify relevant neuropsychological mechanisms/issues and apply to real-world contexts.	Assigned primary article readings Synchronous group work and group assignments Written review paper	Group assignments Written review paper Tests Final exam
<i>Communication Skills.</i> - Articulate some of the central questions and issues in contemporary neuropsychology/cognitive neuroscience - Clearly communicate cognitive neuroscientific material and principles to a scientifically literate audience	Data blitz presentation Assigned primary article readings Synchronous group work and group assignments Written review paper	Group assignments Written review paper Data blitz presentation
<i>Awareness of Limits of Knowledge.</i> Critically analyze published research, including methodology, results and conclusions in the field of cognitive neuroscience/neuropsychology	Assigned primary article readings Synchronous group work and group assignments	Group assignments Written review paper

	Written review paper	
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5 Evaluation

1. Test #1– 18%
2. Test #2 – 18%
3. Final Paper– 15%
4. Data Blitz Presentation (including live Q&A) – 7%
5. Final Exam – 35%
6. Participation in Class Discussions (during in-person tutorials) and Small Group Assignments - 7%

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. All evaluations listed in this course outline are required components of the course and together account for 100% of the final grade. Weightings and assessment formats may be adjusted where required to support course learning objectives, with appropriate notice to students.

Policy on Missing Coursework

Missed In-Class Test: *No make-up tests will be scheduled in this course.* If you have requested academic consideration for an absence (self-attestation), your final exam will be reweighted more heavily to account for the missed test. Note that the final exam is cumulative, and that questions on the final exam cover a wider span of topics and may be more challenging than those on the in-class tests so students should carefully consider the implications of missing a scheduled in-class test. Without a submitted academic consideration request, a mark of 0 will be assigned.

Missed Class Session/Missed Groupwork: The grade for this component of the course will be assessed by the following: group worksheets to be turned in to the TA each week for grading, and in-class participation (in small groups and in class discussions). For this component, your lowest weekly grade will be dropped from your overall grade. *Therefore, if you miss only one week of synchronous class time for the term, you do not need to worry about this affecting your grade.* Because this assessment has built-in flexibility, it is exempt from the academic considerations policy. No other make-up opportunities will be provided (no exceptions).

Final Paper: There will be a 48-hour grace period for submitting the final paper. There is no need to email me about late submissions within this grace period, as the submission portal will remain available until the grace period expires. Without submitted documentation, a late penalty of 10% of the assignment's value per day (e.g., 2 of the 20-point total value) will be applied to papers submitted after the grace period. Because this assessment has flexible deadlines, it is exempt from the academic considerations policy.

Data Blitz: *The data blitz presentation is the designated course component that requires formal supporting documentation for absences.* Without submitted documentation, a mark of 0 will be assigned for a missed data blitz presentation. If you have an approved absence with formal supporting documentation, please contact me and we will make arrangements for you to present your data blitz at an alternative time.

Students who encounter extenuating circumstances affecting their academic responsibilities may submit a request for academic consideration in accordance with Western University's Academic Consideration policies. Requests must be submitted through the [Student Absence Portal](#) and may require supporting documentation.

This course is exempt from the Senate requirement that students receive assessment of their work accounting for at least 15% of their final grade at least three full days before the date of the deadline for withdrawal from a course without academic penalty.

Course grades within the Psychology Department are expected to 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.

Policy on Grade Rounding

Course grades are rounded to the nearest whole number. No additional assignments will be offered to enhance a final grade. Requests to change a grade because it is needed for a future program will not be considered.

6 Assessment/Evaluation Schedule

Test 1	Oct 5
Test 2	Nov 9
Final Paper	Dec 4
Data Blitz Presentations	Dec 7 (in class)
Final Exam	TBA – scheduled by Office of the Registrar

7 Class Schedule

PowerPoint Notes will be posted on Brightspace, typically before each day's lecture. Textbook readings refer to the course textbook, Cognitive Neuroscience (5th ed.). Additional required readings not found in the course textbook and journal articles will be posted on the course website.

Week	Date	Topic	Readings to Complete Prior to Class	# assign. pages	Tutorial Activities/Synchronous Group Work
1	Sept 14	Course Introduction Review of brain anatomy	Chapter 1 (3-16; 24-34 [from beginning up to and not including Neurotransmitters; beginning again at Closer Look at Cerebral Cortex to end])	25	Neuroanatomy Brain Game
2	Sept 21	Methods of Understanding the Brain	Chapter 3	25	"Method Experts" Worksheet + Research Scenarios Activity
3	Sept 28	Brain Development, Neuroplasticity and Critical Period Effects	Chapter 15 (pp. 432-444 [from beginning up to Developmental Disabilities]; 453-460 [Brain Plasticity in Adulthood up to but not including Changes in the Brain with Aging]) Newport et al., 2022, <i>Proceedings of the National Academy of Science</i>	23	Article Comprehension Questions + Class Discussion
	Oct 5	In Class Test 1	Test will take up to 2 hours and be held during the in-class tutorial session		
	Oct 12	Thanksgiving/Fall Reading Week! No Class 			
4	Oct 19	Object recognition The "what" ventral visual	Chapter 6; Chapter 7 (pp 190-192 (beginning up to Coding For Three Dimensions, 200-202	33	Present a Patient: Example Case Reports

		stream Spatial cognition and the “where” dorsal ventral stream	(Space and Action + Optic Ataxia section) Haque et al., 2018 (review article)		
5	Oct 26	Social Cognition	Chapter 13 (pp 373-390) Beadle et al., 2018, <i>Frontiers in Neurology</i>	17	Ultimatum Game + Journal Club Activity
6	Nov 2	Long-term Memory Amnesia and Memory Disorders	Chapter 9 (everything <u>except</u> working memory section pp. 275-280) Bayley et al., 2005 Isausti et al, 2013 (each group member to focus on one section of results; specified in Brightspace).	28	Case study of patient EP
	Nov 9	In Class Test 2	Test will take up to 2 hours and be held during the in-class tutorial session		
7	Nov 16	Sleep and Memory Consolidation	No readings from course textbook. Review paper, Marshall et al., 2020 (posted on Brightspace) Read both of these articles (second is only a single page). Fuentemilla et al., 2013, <i>Current Biology</i> Rudoy et al, 2009, <i>Science</i>	33	Journal Club Activity
8	Nov 23	Language	Chapter 8 (only pp. 215-	12	Modified Jigsaw +

		processing; aphasia and language disorders	227) Read one of these two articles (as assigned individually). Fill out Journal Article Worksheet (posted under Resources in Brightspace) and bring to class. Be prepared to explain your article to your classmates. Articles posted on Brightspace. Group 1,2,3: Chang et al., 2010, <i>Nature Neuroscience</i> Group 4,5,6: Levy & Wilson, 2019, <i>Cerebral Cortex</i>		Class Discussion
9	Nov 30	Consciousness Final Paper Due Friday This Week – December 4	Chapter 14 Gazzaniga chapter posted on Brightspace (EXCEPT for sections 14.4 and 14.8) Article Assignments posted on Brightspace	37	Exploring experimental paradigms to measure consciousness Mini Group Presentations <i>What does it mean to be conscious? How can we measure consciousness in the vegetative state?</i>
10	Dec 7	Final Data Blitz Presentations	<i>No assigned readings but come to class prepared to ask questions!</i>		
	TBA	Final Exam – scheduled by Registrar – to be held in person			

8 Academic Integrity

Scholastic offences are treated seriously at Western University. Students are expected to understand and comply with the University's standards of academic integrity. Scholastic offences may result in penalties up to and including expulsion from the University. Please read [Western's Scholastic Offences](#) policy for definitions and examples of Scholastic offences.

Statement on Use of Electronic Devices

During certain periods of class time, computers and other electronic devices (e.g., cellphones, tablets) will **not** be permitted. This will be made clear during class as indicated by the instructor. Computers and other electronic devices are not allowed during tests and examinations.

Plagiarism Detection Software

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between Western and Turnitin.com.

Use of AI

This course is designed to develop your own critical thinking, writing, and analytical skills. Accordingly, the use of generative artificial intelligence (AI) tools (e.g., ChatGPT, Claude, Copilot) to generate course content is **not permitted**, unless explicitly authorized by the instructor for a specific assignment. All use of artificial intelligence tools must comply with Western University's academic integrity standards.

Students may not use AI tools to:

- Generate written text, arguments, analyses, or interpretations
- Draft or rewrite assignment responses
- Paraphrase substantial portions of source material
- Create references or cite sources not independently verified

Limited, non-substantive uses of AI (e.g., spelling or grammar checks) may be permitted only if they do not alter the intellectual content of the work. Any permitted use must be explicitly disclosed. All submitted work must represent the student's own thinking and independent effort. Students are fully responsible for verifying the accuracy, originality, and integrity of any material they submit. Unauthorized or undisclosed use of AI constitutes a potential scholastic offence and will be handled in accordance with Western University's policies on academic integrity. Students are responsible for ensuring that all work complies with Western's scholastic integrity standards.

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.

Personal Response Systems (“Clickers”)

In classes that involve the use of a personal response system, data collected will only be used in a manner consistent to that described in this outline. It is the instructor’s responsibility to make every effort to ensure that data remain confidential. However, students should be aware that as with all forms of electronic communication, privacy is not guaranteed.

9 Academic Accommodations and Accessible Education

Western University is committed to providing an accessible learning environment. Students with disabilities or medical conditions requiring accommodation are encouraged to contact Accessible Education as early as possible. Accommodations will be implemented in accordance with University policy. Please review [Western’s policy on academic accommodations](#) for student with disabilities. 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

Please review Western’s policy on [Academic Considerations](#):

11 Other Information

Helpful Websites

- Western’s academic policies are available at the [Office of the Registrar](#).
- Departmental policies are available at the [Psychology Department website](#).
- Learning supports available at [Learning Development & Success](#).

Well-being

Western University provides a range of supports to promote student well-being. Students are encouraged to seek assistance when needed. Students who are in emotional/mental distress should refer to [Health and Wellness at Western](#) 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.

Grade Appeals

If you wish to appeal a grade, please read the [policy documentation](#) on requests for relief. 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).

Copyright Statement

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