

PSYC/NEUR 474
Neuroscience of Learning and Memory
Fall 2022

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Lecture Location: SA 124A
Lecture Days/Time: MWF 11:00-11:50
TA: Sakib Khan

Office: AD 032
Office Hours: Email me to arrange a convenient time

Course Description

An examination of learning and memory from a neuroscience perspective. Molecular, cellular, systems-level, and behavioural approaches will be applied to themes such as consolidation, amnesia, and pathological processes.

Course Learning Outcomes

The Department of Psychology is committed to student knowledge and skill development. The table below lists the key learning outcomes for this course, the program-learning outcomes they facilitate (see <https://live-arts.ucalgary.ca/psychology/about#program-learning-outcomes>), and the expected level of achievement.

Course Learning Outcomes	Assessment Methods	PLO(s)	Level(s)
Describe the different memory systems in the brain	Written exams, thought papers	1,4,5,7	C,A,C,A
Explain the neural substrates of learning and memory	Written exams, thought papers	1,4,5,7	C,A,C,A
Effectively communicate research findings in the field of learning and memory	Exams, thought papers	1,2,4,5,7	C,A,A,C,A
Form and communicate evidence-based opinions relating to the field of learning and memory	Thought papers	1,2,4,5,6,7	C,A,A,C,A,A
Critically analyze the primary literature in the learning and memory field	Thought papers	1,2,4,5,7	C,A,A,C,A

Notes. PLOs = Program-Learning Outcomes: 1 = demonstrate knowledge of psychological sciences, 2 = think critically and solve problems, 3 = conduct research and analyze data, 4 = communicate effectively, 5 = demonstrate information literacy, 6 = understand and implement ethical principles in a diverse world, 7 = apply psychological knowledge and skills, 8 = Demonstrate multicultural competence and awareness of issues related to equity, diversity,* and inclusion. Level of PLO achievement facilitated by this course: I = introductory, C = competency, A = advanced.

Acknowledgments and Respect for Diversity

Our classrooms view diversity of identity as a strength and resource. **Your experiences and different perspectives are encouraged and add to a rich learning environment that fosters critical thought through respectful discussion and inclusion.** The Department of Psychology would also like to acknowledge the traditional territories of the people of the Treaty 7 region in southern Alberta. The City of Calgary is also home to Métis Nation of Alberta, Region III.

Course Format

This is an in-person class held on campus.

Prerequisites

Psychology 312 OR 300/301, and 375 as well as admission to the Psychology major or Honours program.

Required Text

There is no required textbook for this course. References to required readings from the primary literature will be provided.

Assessment Methods

Exams

Midterm #1 (Discussions 1-12; Oct 12 th):	23.33%
Midterm #2 (Discussions 13-23; Nov 16 th):	23.33%
Final exam (Discussions 24-34; TBA):	23.33%

Exams will be short answer and cover lecture and the associated reading material up to the exam date.

The midterms and final exam will not be cumulative. Short answer questions will be graded such that half marks will be given if it is clear you know the general answer but have omitted specific details. Full marks will be given to those that include specifics, and employ the correct terminology and concepts.

Exams in this course are closed book. The use of resources, including class notes, the textbook, online resources, and calculators is prohibited during the exams in this course. Students may not communicate with others about course material or the exam either in person or electronically during exams.

Written Assignments

Thought paper #1 (due Oct 5 th):	10%
Thought paper #2 (due Nov 2 nd):	10%
Thought paper #3 (due Dec 7 th):	10%

There will be three thought papers due throughout the semester; each will be worth 10% of your final grade. Thought papers should be written in 12-point font with 1-inch margins, and will require a maximum of 4 double-spaced pages (not including references or title page). Each paper will require you to reflect on a topic related to learning and memory, and provide you with an opportunity to relate the material we discuss in class to real-world issues. Papers will be graded according to the analysis/insight into the topic in question, as well as the strength of writing (organization, etc.) and mechanics of the

paper. More details regarding the thought papers can be found on D2L. **Without instructor approval, late assignments will be penalized 10% per day, including weekends.**

University of Calgary Academic Integrity Policy

Academic integrity is the foundation of the development and acquisition of knowledge and is based on values of honesty, trust, responsibility, and respect. We expect members of our community to act with integrity. Research integrity, ethics, and principles of conduct are key to academic integrity. Members of our campus community are required to abide by our institutional code of conduct and promote academic integrity in upholding the University of Calgary's reputation of excellence. It is your responsibility to ensure that you have read and are familiar with the student academic misconduct policy: <https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Student-Academic-Misconduct-Policy.pdf>.

Department of Psychology Criteria for Letter Grades

Psychology course instructors use the following criteria when assigning letter grades:

A+ grade: *Exceptional Performance.* An A+ grade indicates near perfect performance on multiple choice and short answer exams. For research papers/essays/course projects/presentations, an A+ grade is awarded for exceptional work deserving of special recognition and is therefore not a common grade.

A, A- Range: *Excellent Performance.* Superior understanding of course material. Written work is very strong in terms of critical and original thinking, content, organization, and the expression of ideas, and demonstrates student's thorough knowledge of subject matter.

B Range: *Good Performance.* Above average understanding of course material. Written work shows evidence of critical thinking and attention to organization and editing but could be improved in form and/or content.

C Range: *Satisfactory Performance.* Adequate understanding of course material. Knowledge of basic concepts and terminology is demonstrated. Written work is satisfactory and meets essential requirements but could be improved significantly in form and content. Note: All prerequisites for courses offered by the Faculty of Arts must be met with a minimum grade of C-.

D range: *Marginally meets standards.* Minimal understanding of subject matter. Written work is marginally acceptable and meets basic requirements but requires substantial improvements in form and content. Student has not mastered course material at a level sufficient for advancement into more senior courses in the same or related subjects.

F grade: *Course standards not met.* Inadequate understanding of subject matter. Written work does not meet basic requirements. Student has not demonstrated knowledge of course material at a level sufficient for course credit.

Grading Scale

A+	96-100%	B+	80-84%	C+	67-71%	D+	54-58%
A	90-95%	B	76-79%	C	63-66%	D	50-53%
A-	85-89%	B-	72-75%	C-	59-62%	F	0-49%

It is at the instructor's discretion to round off either upward or downward to determine a final grade when the average of term work and final examinations is between two letter grades. To determine final letter grades, final percentage grades will be rounded up or down to the nearest whole percentage (e.g., 89.5% will be rounded up to 90% = A but 89.4% will be rounded down to 89% = A-).

Tentative Lecture Schedule

Date	Lecture/Due Date	
W Sep 7	<i>University Lectures begin.</i> Discussion 1 (Introduction to the course)	Course Introduction
F Sep 09	Discussion 2	Defining Memory
M Sep 12	Discussion 3	
W Sep 14	Discussion 4	
R Sep 15	<i>Last day to drop a class without a penalty</i>	
F Sep 16	<i>Last day to add or swap a course</i> Discussion 5	
M Sep 19	Discussion 6	
W Sep 21	Discussion 7	
F Sep 23	<i>Fee payment deadline for Fall Term full and half courses.</i> Discussion 8	Multiple Memory Systems in the Brain
M Sep 26	Discussion 9	
W Sep 28	Discussion 10	
F Sept 30	UNIVERSITY CLOSED National Day for Truth and Reconciliation	
M Oct 3	Discussion 11	
W Oct 5	Thought Paper #1 due. Discussion 12	
F Oct 7	Discussion 13	
M Oct 10	Thanksgiving Day, University closed (except Taylor Family Digital Library, Law, Medical, Gallagher and Business Libraries). No lectures.	
W Oct 12	Midterm #1 (Discussions 1-12 + reading material)	
F Oct 14	Discussion 14	Episodic Memory
M Oct 17	Discussion 15	
W Oct 19	Discussion 16	
F Oct 21	Discussion 17	
M Oct 24	Discussion 18	
W Oct 26	Discussion 19	In Search of the Engram
F Oct 28	Discussion 20	
M Oct 31	Discussion 21	
W Nov 2	Thought Paper #2 due. Discussion 22	
F Nov 4	Discussion 23	
Nov 6-12	Term Break No Classes	

F Nov 11	Remembrance Day (Observed). University Closed (except Taylor Family Digital Library, Law, Medical, Gallagher and Business Libraries). No lectures.	
M Nov 14	Discussion 24	In Search of the Engram
W Nov 16	Midterm #2 (Discussions 13-23 + reading material)	
F Nov 18	Discussion 25	Modulating Memory Systems
M Nov 21	Discussion 26	
W Nov 23	Discussion 27	
F Nov 25	Discussion 28	
M Nov 28	Discussion 29	Fear Memory
W Nov 30	Discussion 30	
F Dec 2	Discussion 31	Actions and Habits
M Dec 5	Discussion 32	
W Dec 7	<i>Fall Term Lectures End. Last day to withdraw with permission from Fall Term half courses. Thought Paper #3 due. Discussion 33</i>	
Dec 10-21	Fall Final Exam Period (Discussions 24-33 + reading material)	

Extra Research Participation Course Credit is Not Offered for this Course.

Absence From A Test/Exam

Makeup tests/exams are **NOT** an option without the approval of the instructor. Students who miss a test/exam have up to 48 hours to contact the instructor to ask for a makeup test/exam. It's the instructor's discretion if they will allow a make-up exam. Students who do not schedule a makeup test/exam with the instructor within this 48-hour period forfeit the right to a makeup test/exam. At the instructor's discretion, a makeup test/exam may differ significantly (in form and/or content) from a regularly scheduled test/exam. **Once approved by the instructor a makeup test/exam must be written within 2 weeks of the missed test/exam on a day/time scheduled by the instructor. If a student cannot write their final exam on the date assigned by the Registrar's Office, they need to apply for a deferred exam** <https://www.ucalgary.ca/registrar/exams/deferred-exams>.

Travel During Exams

Consistent with University regulations, students are expected to be available to write scheduled exams at any time during the official December and April examination periods. Requests to write a make-up exam because of conflicting travel plans (e.g., flight bookings) will NOT be considered by the department. Students are advised to wait until the final examination schedule is posted before making any travel arrangements. **If a student cannot write their final exam on the date assigned by the Registrar's Office, they need to apply for a deferred exam** <https://www.ucalgary.ca/registrar/exams/deferred-exams>. **Students with an exceptional extenuating circumstance (e.g., a family emergency) should contact the Department of Psychology (psyugrd@ucalgary.ca).**

Reappraisal of Graded Term Work <http://www.ucalgary.ca/pubs/calendar/current/i-2.html>

Reappraisal of Final Grade <http://www.ucalgary.ca/pubs/calendar/current/i-3.html>

Academic Accommodations

Students seeking an accommodation based on disability or medical concerns should contact Student Accessibility Services; SAS will process the request and issue letters of accommodation to instructors. For additional information on support services and accommodations for students with disabilities, visit www.ucalgary.ca/access/. Students who require an accommodation in relation to their coursework based on a protected ground other than disability should communicate this need in writing to their Instructor. The full policy on Student Accommodations is available at <https://www.ucalgary.ca/legal-services/university-policies-procedures/accommodation-students-disabilities-procedure>.

Academic Misconduct

For information on academic misconduct and its consequences, please see the University of Calgary Calendar at <http://www.ucalgary.ca/pubs/calendar/current/k.html>

Instructor Intellectual Property

Course materials created by professor(s) (including course outlines, presentations and posted notes, labs, case studies, assignments and exams) remain the intellectual property of the professor(s). These materials may NOT be reproduced, redistributed or copied without the explicit consent of the professor. The posting of course materials to third party websites such as note-sharing sites without permission is prohibited. Sharing of extracts of these course materials with other students enrolled in the course at the same time may be allowed under fair dealing.

Copyright Legislation

All students are required to read the University of Calgary policy on Acceptable Use of Material Protected by Copyright (<https://www.ucalgary.ca/legal-services/university-policies-procedures/acceptable-use-material-protected-copyright-policy>) and requirements of the copyright act (<https://laws-lois.justice.gc.ca/eng/acts/C-42/index.html>) to ensure they are aware of the consequences of unauthorized sharing of course materials (including instructor notes, electronic versions of textbooks etc.). Students who use material protected by copyright in violation of this policy may be disciplined under the Non-Academic Misconduct Policy.

Freedom OF Information and Protection of Privacy

Student information will be collected in accordance with typical (or usual) classroom practice. Students' assignments will be accessible only by the authorized course faculty. Private information related to the individual student is treated with the utmost regard by the faculty at the University of Calgary

Student Support and Resources

<https://www.ucalgary.ca/registrar/registration/course-outlines>

Important Dates

The last day to drop this course with no “W” notation and **still receive a tuition fee refund** is **Thursday, September 15, 2022**. Last day add/swap a course is **Friday, September 16, 2022**. The last day to withdraw from this course is **Wednesday, December 7, 2022**

<https://www.ucalgary.ca/pubs/calendar/current/academic-schedule.html#fall2017>