

PSYC*6800, Course Outline: Winter 2025

General Information

Course Title: PSYC*6800 – Neurobiology of Learning

Course Description: This course surveys basic principles and concepts in the neurobiology of learning and memory. Neuroanatomical, neurochemical, cellular, and molecular mechanisms underlying various learning and memory processes will be explored, with an emphasis on recent experimental findings. We will meet weekly in a seminar format for discussions and student presentations.

Credit Weight: 0.5

Academic Department (or campus): Psychology

Semester Offering: W25

Class Schedule and Location: Wednesdays, 11:30-2:20 PM; ROZH 107

Instructor Information

Instructor Name: Dr. Boyer Winters

Instructor Email: bwinters@uoguelph.ca

Office location and office hours: MCKN 3005; ext. 52163; Meeting by arrangement; e-mail at all times

GTA Information

GTA Name: N/A

GTA Email: N/A

GTA office location and office hours: N/A

Course Content

Specific Learning Outcomes:

By the end of this course, successful students should be able to:

1. Engage critically with scientific studies in the field of the neurobiology of learning and memory, demonstrating this skill through:

- a. Student-led seminars in which they clearly present the rationale, methods/results, and interpretations of a published article, providing their own critical evaluation of these components.
 - b. Flexible thinking about the presented article in a 5-min question and answer period following the seminar presentation.
2. Demonstrate critical and creative scientific writing skills by integrating insight acquired from thorough readings of the literature and the above seminar experience to produce a Journal of Neuroscience-style 'Journal Club' paper, reviewing and critically evaluating a study recently published in a field related to learning and memory.
 3. Explain, with the use of relevant empirical data, various learning and memory concepts and their putative neurobiological bases (e.g., memory consolidation).
 4. Describe and critically evaluate different methodological approaches to the study of the neurobiology of learning and memory.
 5. Demonstrate refined presentation skills resulting from observation and administration of PowerPoint seminars.

Lecture Content:

Schedule of topics and dates:

<u>Date</u>	<u>Reading(s)</u>	<u>Presenter(s)</u>
Jan 8	None – Brief organizational meeting to discuss assignments, etc. for the semester	BW
Jan 15	Chapters 1, 2, and 9 <u>Assign speakers and seminar topics for weeks 4-6 and 8-11</u>	Lecture from BW – “Making Memories”, Part 1
Jan 22	Chapters 1, 2, and 9	Lecture from BW – “Making Memories”, Part 2
Jan 29	Chapters 15, 16, and 17 – Presentations and/or discussion	TBD
Feb 5	Chapters 18, 19 – Presentations and/or discussion	TBD
Feb 12	Chapters 4, 5, and 6 – Presentations and/or discussion	TBD
Feb 17-21	WINTER BREAK – NO CLASS	
Feb 26	Chapters 10, 11, 13, and 14 – Presentations and/or discussion	TBD

March 5	Article Presentations/discussion	TBD
March 12	Article Presentations/discussion	TBD
March 19	Article Presentations/discussion	TBD
March 26	Review week	Class discussion
April 2	Study/write week	None

Course Assignments and Tests:

Assignment or Test	Due Date	Contribution to Final Mark (%)	Learning Outcomes Assessed
Oral Presentation #1	TBD	30%	1,3,4,5
Oral Presentation #2	TBD	30%	1,3,4,5
Written Assignment	April 7, by 11:59pm; Dropbox on CourseLink	30%	1-4
Class Participation	Weekly	10%	1,3,4

Additional Notes:

Method of Evaluation

A) Two PowerPoint presentations: 30% each; to be assigned in second class.

Each student will perform two oral presentations. The first of these will be a 30-min presentation of a chapter in the Rudy text (see attached schedule). For full marks, each student should seek to integrate the chapter material with related studies that may not necessarily be cited in the Rudy text, and which extend the main concepts of the assigned chapter in some significant way. The point of this first presentation is not necessarily to present EVERYTHING in the assigned chapter, but to convey the central theoretical ideas while providing empirical support for or against these ideas.

The second talk will be a 20-min presentation of a recent research article chosen by the student. There are very few constraints on the nature of the article you can choose, just that it must in some way relate to the Neurobiology of Learning and Memory. Although not necessary, I recommend you choose a topic that is related to your own research. The presentation should provide relevant background information, details of methods and results, and a critical discussion of the chosen article. Please clear the article with me AT LEAST two weeks prior to your presentation day so I can provide the class with the article to read.

B) Written assignment: 30%; due electronically on April 7.

Journal of Neuroscience-style 'Journal Club' paper written about a recent article in the broad field of learning and memory. Write according to the **Content and Format** guidelines at the following link:

<https://www.jneurosci.org/content/jneurosci-journal-club>

C) Contributions to class discussions: 10%

Students are expected to attend class and participate in discussions.

Final examination date and time: N/A

Final exam weighting: N/A

Course Resources

Required Texts: Rudy, J.W. (2014/2020). The Neurobiology of Learning and Memory. 2nd/3rd Edition. Sinauer Associates, Inc

The 2nd edition is available on Amazon for approx. \$40. Alternatively, the 3rd edition can be either purchased (\$177.14) or rented (\$84.99 – 180 days; \$98.06 – 1 year) from the following site:

<https://www.vitalsource.com/en-ca/products/the-neurobiology-of-learning-and-memory-jerry-w-rudy-v9781605359359>

Other Resources:

Web site: lecture notes will be available online before each class. Just logon to CourseLink using your U of G email username and password.

Course Policies

Grading Policies

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

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 April 4. For regulations and procedures for Dropping Courses, see the Academic Calendar: [Current Undergraduate Calendar](#)