

PSY397H5F – Neuroplasticity and Behaviour

Delivery Method: **IN-PERSON**

Schedule: **THU 12:00pm – 3:00pm**

Room Location: **DV2074 (Davis Building)**

Contact Information

Prof. Robert Gerlai

robert.gerlai@utoronto.ca

Office Hours: Thursdays after class (3pm to 4pm)

Office Location: via Zoom (zoom login details will be announced on course website (Quercus))

Teaching Assistants:

Taylor Irvine

tay.irvine@utoronto.ca

Ben Tsang

ben.tsang@mail.utoronto.ca

Amira Abozaid

amira.abozaid@mail.utoronto.ca

Course Description

An examination of experimental findings and theory documenting the plasticity of the brain and its relationship to behaviour. The course will discuss the molecular, synaptic, cellular and circuitry components of neural plasticity in relation to learning and experience. **Prerequisite:** PSY201H5/equivalent, 290H5

Learning Outcomes

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

- Explain how the basic principles of neuronal communication, generation of membrane potential, propagation of action potential, and interaction between excitatory and inhibitory neurons
- Identify and distinguish anatomical, cellular, synaptic, and fundamental molecular mechanisms underlying relational learning and memory.
- Develop appreciation for the importance of the hippocampal formation in episodic/declarative memory and understand that memory is not a unitary process, but instead has multiple independent forms and phases.

Required Reading Material

Mechanisms of Memory, Author: J. David Sweatt, Publisher: Elsevier, ISBN # 0-12-678957-6

Additional readings, current research papers, will be provided as the course proceeds.

Course Evaluation

Term test 1 = 22%, **Term test 2** = 22%, **Term paper** (5 pages) on a selected topic = 22%, **Final exam** = 34%, Class participation bonus marks may also be awarded.

Course Webpage

The website associated with this course is accessible via <http://q.utoronto.ca>

Note: You don't need to create a new login for Quercus; it already knows who you are. You just need your UTORid and password. This is the same login that gets you onto the wireless network with your laptop, and the same one that you use to check your email. If you're confused about your UTORid or don't remember your password, go to: <https://www.utorid.utoronto.ca/>

In order to access course material, monitor course information, and view your grades you must log into Quercus. If you have any general questions regarding Quercus, please visit the [help site](#).

Student Tech Requirements and Connection Tools

- [Recommended tech requirements for online learning](#)
- [UTM Library Learn Anywhere resource website](#)

IMPORTANT COURSE POLICIES ****PLEASE READ****

Missed Test Special Consideration Request Process

Students who miss a test due to circumstances beyond their control (e.g. illness or an accident) can request that the Department grant them special consideration. Students must present their case to the Department (NOT the Instructor) by submitting a request via the online Special Consideration Request form at: <https://utmapp.utm.utoronto.ca/SpecialRequest>.

Important note: If you sit down and receive a test, you will **NOT** be able to receive special consideration.

If your request is approved by the department, redistribution will apply (i.e. the weight of the missed term test will be redistributed to the term test that has been written)

Extension of Time Special Consideration Request Process

Students who seek to be granted more time to complete their term work beyond the due date without penalty, owing to circumstances beyond their control (e.g., illness, or an accident), must do so by submitting a request **directly to the Instructor** for the period up to and including the last day of the term. The decision as to whether or not to apply a penalty for the specified period rests with the Instructor.

Students who seek to be granted more time to complete term work beyond the last day of the term must submit their request directly to the Department. This request covers the period following the last day of classes and ends the last day of the exam period. This is done by submitting a request via the online Special Consideration Request form at <https://utmapp.utm.utoronto.ca/SpecialRequest>. You are advised to seek advising by the departmental Undergraduate Counsellor prior to the deadline.

Supporting Documentation

The University is temporarily suspending the need for a doctor's note or medical certificate for any absence from academic participation. However, you are required to use the Absence Declaration tool on ACORN found in the Profile and Settings menu to formally declare an absence from academic participation. The tool is to be

used if you require consideration for missed academic work based on the procedures specific to our campus/department.

Missed Final Exam or Extension of Time beyond exam period

Missed final exams or for extensions of time beyond the examination period you must submit a petition through the Office of the Registrar and follow their procedures.

Penalties for Lateness

A penalty of 10% per calendar day (i.e., including weekends and holidays, during which students are not able to submit term work) up to and including the last day of classes, will be applied by the Instructor. After the last day of classes, the penalty of 10% per calendar day will be applied by the Undergraduate Counsellor on behalf of the Department. No penalty will be assigned if request for special consideration, described above, was successful.

Academic Guidelines

It is your responsibility to ensure that you have met all prerequisites listed in the UTM Calendar for this course. If you lack any prerequisites you WILL BE REMOVED from the course up until the last day to add a course. Further information about academic regulations, course withdrawal dates and credits can be found in the University of Toronto Mississauga Calendar.

You are encouraged to read this material. If you run into trouble and need advice about studying, preparing for exams, note taking or time management, free workshops and advice are available from the Robert Gillespie Academic Skills Centre at 905-828-5406.

AccessAbility Services

The University provides academic accommodations for students with disabilities in accordance with the terms of the Ontario Human Rights Code. This occurs through a collaborative process that acknowledges a collective obligation to develop an accessible learning environment that both meets the needs of students and preserves the essential academic requirements of the University's courses and programs. Students requiring academic accommodations for learning, physical, sensory, or mental health disabilities or medical conditions should contact the AccessAbility Office (2037B Davis Building), 905-828-3847.

Academic Honesty and Plagiarism

Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Toronto Mississauga is a strong signal of each student's individual academic achievement. As a result, UTM treats cases of cheating and plagiarism very seriously.

The University of Toronto's Code of Behaviour on Academic Matters outlines behaviours that constitute academic dishonesty and the process for addressing academic offences. Potential offences include, but are not limited to:

In papers and assignments:

1. Using someone else's ideas or words without appropriate acknowledgement.
2. Submitting your own work in more than one course without the permission of the instructor.
3. Making up sources or facts.
4. Obtaining or providing unauthorized assistance on any assignment.

On tests and exams:

1. Using or possessing unauthorized aids.
2. Looking at someone else's answers during an exam or test.
3. Misrepresenting your identity.

In academic work:

1. Falsifying institutional documents or grades.
2. Falsifying or altering any documentation required, including (but not limited to) doctor's notes.

With regard to remote learning and online courses, UTM wishes to remind students that they are expected to adhere to **the Code of Behaviour on Academic Matters** regardless of the course delivery method. By offering students the opportunity to learn remotely, UTM expects that students will maintain the same academic honesty and integrity that they would in a classroom setting. Potential academic offences in a digital context include, but are not limited to:

Remote assessments:

1. Accessing unauthorized resources (search engines, chat rooms, Reddit, etc.) for assessments.
2. Using technological aids (e.g. software) beyond what is listed as permitted in an assessment.
3. Posting test, essay, or exam questions to message boards or social media.
4. Creating, accessing, and sharing assessment questions and answers in virtual "course groups."
5. Working collaboratively, in-person or online, with others on assessments that are expected to be completed individually.

All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of Behaviour on Academic Matters. If you have questions or concerns about what constitutes appropriate academic behaviour or appropriate research and citation methods, you are expected to seek out additional information on academic integrity from your instructor or from other institutional resources.

Academic Rights

You, as a student at UTM, have the right to:

- Receive a syllabus by the first day of class.
- Rely upon a syllabus once a course is started. An instructor may only change marks' assignments by following the University Assessment and Grading Practices Policy provision 1.3.
- Refuse to use turnitin.com (you must be offered an alternative form of submission).
- Have access to your instructor for consultation during a course or follow up with the department chair if the instructor is unavailable.
- Ask the person who marked your term work for a re-evaluation if you feel it was not fairly graded. You have up to one month from the date of return of the item to inquire about the mark. If you are not satisfied with a re-evaluation, you may appeal to the instructor in charge of the course if the instructor did not mark the work. If your work is remarked, you must accept the resulting mark. You may only appeal a mark beyond the instructor if the term work was worth at least 20% of the course mark.
- Receive at least one significant mark (15% for H courses, 25% for Y courses) before the last day you can drop a course for H courses, and the last day of classes in the first week of January for Y courses taught

in the Fall/Winter terms.

- Submit handwritten essays so long as they are neatly written.
- Have no assignment worth 100% of your final grade.
- Not have a term test worth more than 25% in the last two weeks of class.
- Retain intellectual property rights to your research.
- Receive all your assignments once graded.
- View your final exams. To see a final exam, you must submit an online Exam Reproduction Request within 6 months of the exam. There is a small non-refundable fee.
- Privacy of your final grades.
- Arrange for representation from Downtown Legal Services (DLS), a representative from the UTM Students' Union (UTMSU), and/or other forms of support if you are charged with an academic offence.

Equity Statement

The University of Toronto is committed to equity and respect for diversity. All members of the learning environment in this course should strive to create an atmosphere of mutual respect. As a course instructor, I will neither condone nor tolerate behaviour that undermines the dignity or self-esteem of any individual in this course and wish to be alerted to any attempt to create an intimidating or hostile environment. It is our collective responsibility to create a space that is inclusive and welcomes discussion. Discrimination, harassment and hate speech will not be tolerated. If you have any questions, comments, or concerns you may contact the UTM Equity and Diversity officer at edo.utm@utoronto.ca or the University of Toronto Mississauga Students' Union Vice President Equity at vpequity@utmsu.ca.

Please note that this outline is subject to change depending on the needs of the class (we may need additional time to cover a topic). Any changes to the syllabus will be announced in class one week before. However, the assignment and test dates are fixed.

Course Outline

Course Outline		
Date	Topic	Comments
Sep 8	Learning & memory- Intro	Chapter 1
Sep 15	Human learning and memory	Chapter 2
Sep 22	Non-associative & Associative learning	Chapter 3-4-5
Sep 29	Introduction to neurobiology: neurons & synapses	video presentation
Oct 6	Hippocampus and its role in learning & memory	Chapter 6
Oct 13		Fall reading week
Oct 20	Test 1: covers topics of first 5 lectures	On-line
Oct 27	Long-term Potentiation	Chapter 7
Nov 3	The NMDA-Receptor	Chapter 8
Nov 10	Biochemical mechanisms of memory	Chapter 9
Nov 17	Molecular genetic mechanisms of long-term information storage	Chapter 10
Nov 24	Test 2: covers topics presented after first term test	On-line
Dec 1	Overview and unanswered questions	Term paper due
Dec 9-20	Study break, exam period	Study break