

NROB60 S2024



Psychology

UNIVERSITY OF TORONTO

SCARBOROUGH

NROB60: Neuroanatomy Laboratory
Summer 2024 Syllabus

Table of Contents

Instructor Information.....	2
TA Information.....	2
Megan Lozzi (she/her)	2
Anna Canella (she/her)	2
Tahsin Reza (she/her).....	2
Course Description.....	2
Learning Objectives	3
Course Logistics.....	3
Schedule	3
Lab Component.....	4
Lab Notes	4
Lab Safety	4
Lecture Component.....	5
Lectures.....	5
Quercus Modules	5
Evaluation Scheme.....	5
Lab Component—50%	5
Lecture Component—50%	5
Bonus—2%.....	6
Submitting work.....	6
Missed Deadlines and Alternate Exam Formats	6
Departmental Position on Grade Norms	6
Community Building	7
Inclusivity and Safe Classrooms	7
Accessibility.....	7
Academic Integrity.....	8
University Code of Behaviour on Academic Matters	8
My Teaching Values	9
Transparency.....	9
Non-hierarchical learning	9
Student/Community-driven learning	9

Instructor Information

Debra Bercovici (she/her)

Pronounced: ber-coh-vitch (yes, it's a silent 'i'!)

Email: d.bercovici@utoronto.ca

- Please put course code (NROB60) in the subject line for prioritized responding
- Replies within ~24 business day hours.

Office Hours:

- By appointment
- Book via my [Calendly](#) page
- Access my [Zoom office](#)

I'm available to discuss course content, address concerns about the course or your UTSC experience, talk about grad school and non-academic career paths, and find ways to connect you with resources to better support you as a student.

TA Information

Megan Lozzi (she/her)

Teaching PRA001

Grading exams

Email: megan.lozzi@mail.utoronto.ca

Anna Canella (she/her)

Teaching PRA003

Grading exams

Email: a.canella@utoronto.ca

Tahsin Reza (she/her)

Teaching PRA003

Grading exams

Email: tahsin.reza@mail.utoronto.ca

Course Description

As Neuroscientists, we aim to study the nervous system from a molecular and cellular level all the way up to a circuits and systems level. The field of neuroscience is unique in that it sits at the intersection of anatomy, molecular biology, biochemistry, physiology, pharmacology, psychology, and computer science. To begin your journey as neuroscientists, it is important to develop an understanding of neuroanatomy. In this course, you will learn about the anatomy of the brain, as well as the structure and function of the cells of the nervous system. You will also develop an understanding of how neurons communicate, with a focus on their physiological properties. Finally, we will examine specific brain regions and discuss their functions and connections.

The goal of the weekly lab sessions is to enhance your learning through hands-on experiences in gross and systems anatomy. You will have the opportunity to dissect sheep brains and examine nervous systems structures in 3D. If you've never taken an anatomy course before, you may find that it is like learning a new language or learning a new map. Mastery involves patience, repetition, and a conceptual understanding in addition to rote memorization.

The material from this course will lay the foundation for your future neuroscience courses.

Learning Objectives

By the end of the course, you will be able to:

1. Develop lab skills for dissecting brain tissue.
2. Understand basic techniques used to investigate brain morphology and connectivity.
3. Summarize the topography and structural organization of the brain.
4. Explain the chemical, physical, and molecular properties that promote neuron signalling.
5. Discuss the functional role of selected brain regions in regulating behaviour.

Course Logistics

Schedule

Week	Date	Topic	Notes
1	Lec: May 8	Course Introduction	
	Lab: May 10	Lab syllabus Lab safety and procedures Basic terminology Gross anatomy Removal of the meninges Major sulci and gyri	Photo Series 1
2	Lec: May 15	History of Neuroanatomy Structure of the Nervous System <ul style="list-style-type: none"> • Anatomical references • CNS and PNS Cranial nerves, meninges, ventricles, blood brain barrier	
	Lab: May 17	Ventral surface structures Cranial nerves and functions	Photo Series 1 and 2
3	Lec: May 22	*This is a pre-recorded lecture!!!* Development of the Nervous System <ul style="list-style-type: none"> • Evolution and brain development • Neurodevelopment in humans Human gross anatomy	
	Lab: May 24	Mid-sagittal sectioning Identification of mid-sagittal structures	Photo Series 3
4	Lec: May 29	Neurons and Glia Resting Membrane Potential	
	Lab: May 31	Dorsal and lateral dissections Hippocampal dissection	Photo Series 4
5	Lec: Jun 5	Action potentials Types of Synapses Chemical Synaptic Transmission	

	Lab: Jun 7	Review Session	
6	Lec: Jun 12	Synaptic Integration The Neurotransmitters System	
	Lab: Jun 14	Lab Midterm	Testing lab content weeks 1-5
	Jun 17-21	READING WEEK	
7	Lec: Jun 26	Lecture Midterm	Testing lecture content weeks 1-6
	Lab: Jun 28	University Holiday – NO CLASS	
8	Lec: Jul 3	Functional Neuroanatomy: Hippocampus	
	Lab: Jul 5	Identification of horizontal structures Rostral coronal sections	Photo Series 5
9	Lec: Jul 10	Functional Neuroanatomy: Cerebellum and Basal Ganglia	
	Lab: Jul 12	Caudal coronal sections Cerebellar coronal sections	Photo Series 6
10	Lec: Jul 17	Functional Neuroanatomy: Limbic System (Optional: In-Class Midterm Review)	
	Lab: Jul 19	Atlas Activity	Allen Lab 1
11	Lec: Jul 24	Functional Neuroanatomy: Prefrontal Cortex	
	Lab: Jul 26	Gene Expression Activity	Allen Lab 2
12	Lec: Jul 31	Review	
	Lab: Aug 2	Optional Review Session	
	Lab: Aug 7*	No Lab	
Final Exam Period	Lec: TBA	Final Exam	Testing all lecture content weeks 1-12
	Lab: TBA	Final Exam	Testing lab content weeks 1-11

*Note that this is a make-up day for the holiday on Friday June 28th.

Lab Component

Your first lab is during the first week of classes on May 10. Labs take place in SW 330 on Fridays from 9-11am (PRA0001), 11am-1pm (PRA0002), or 1pm-3pm (PRA0003). You must attend your assigned lab section. Any changes must be made through ACORN. *Lab sessions are not recorded and are held in-person only due to the nature of the hands-on content.*

Lab Notes

Content for the labs is accessible on Quercus in the Weekly Modules. [The Sheep Brain Atlas 2022](#) will be used for Weeks 1-8. The [Allen Lab 1](#) will be used for Week 10 and the [Allen Lab 2](#) will be used for Week 11.

Lab Safety

You are **required** to wear a lab coat and closed-toe shoes at all times in the lab. In addition, safety glasses (or prescription glasses) are recommended for the dissections. Disposable gloves must also be worn during dissections and will be provided. There is no food/drink allowed in the lab. Proper safety procedures will be discussed during the first lab and must be followed at all times. We suggest placing your phones in sealable plastic bags if you plan to use them in the lab.

Lecture Component

Lectures

You are invited to attend and contribute to classes on Fridays in IC 230 from 1-3pm. If you cannot attend in person (e.g. you are sick), a Zoom option is available. You can access the weekly Zoom classroom by going to the [Zoom Tab](#) on Quercus.

Since I will be recording our lectures, your in-person/zoom participation will also be recorded and will be available to students in the course for viewing remotely. Course videos and materials belong to your instructor/University and are protected by copyright. You are permitted to download lecture recordings and materials for your own *academic* use, but you are not permitted to copy, share, or use them for any other purpose without Debra's explicit permission.

Most of the lecture content is derived from [Neuroscience: Exploring the Brain, Enhanced Edition by Mark Bear; Barry Connors; Michael A. Paradiso](#). If you feel that you learn best from textbooks, you may find purchasing a copy to be helpful for you. Note that this is not necessary, and all testable content will be in lectures and lecture notes.

Quercus Modules

You can find each weekly module on Quercus. At the top there is a Student Resource tab with links to various campus supports available.

The module page is also where you will find the base of the weekly lecture content, including lecture slides and notes. Lecture notes are comprehensive and as close to what I will say in class as possible without it being a script. My intention is that this will be a sufficient replacement for students who benefit from having note-taking accommodations. Lecture notes are also uploaded in Word doc format so you can edit them as you see fit.

All weekly content is available one week prior to each class.

Evaluation Scheme

Lab Component—50%

- [Lab Midterm Exam](#) (20%)
- [Lab Final Exam](#) (30%)

Lecture Component—50%

- [Lecture Midterm Exam](#) (20%)
- [Lecture Final Exam](#) (30%)

Bonus—2%

- Submitting [practice exam questions](#) (up to 2% added to your final grade)

For a detailed description of each graded component, please click on an individual item to go to the associated page on Quercus.

Grades for each evaluation will be posted directly to your [gradebook](#) on Quercus. Note that “final grades” calculated by Quercus may not be accurate and are not considered final. Your final grade is the grade that appears on ACORN at the end of the course.

Submitting work

Lecture/lab exams will be in-person paper/pen exams during class time except for the final exams, which are scheduled by the university. Please note that if you write your tests/exams in pencil, you will not be able to request a regrade if needed. Therefore, **we advise writing in pen.**

Bonus practice question submissions are to be completed on the Quercus [Discussion Board](#). They are due by the end of the day before the subsequent lecture (Tuesdays at 11:59pm). Once posted, your classmates will have access to them. I hope they can serve as practice questions for you and your peers.

Missed Deadlines and Alternate Exam Formats

If you miss a lab/lecture midterm, please contact Debra as soon as you can to work out an alternate arrangement. You are not required to submit any official UTSC paperwork. My typical policy is a make-up one-on-one **oral exam** during office hours. Once grades have been released for the class (typically within 2 weeks), make-up exams will no longer be permitted.

If you believe that your academic capabilities are not well-represented by standard exam structures (i.e., in-person, timed, multiple choice, short answers), I will consider individual proposals for alternate exam formats at least 2 weeks *before* the exam has taken place.

There are *no make-up opportunities* for the bonus practice question submissions. There are a total of 11 possible submission weeks, and you need 10 submissions for the 2% bonus or 5 submissions for the 1% bonus. These bonuses cannot be combined with other UTSC bonuses (e.g., [Reading and Writing Excellence program](#)).

Departmental Position on Grade Norms

The Department of Psychology at UTSC is committed to providing fair, consistent, and uniform delivery of its courses from year to year. As part of this commitment, the Department mandates

that all B-level courses' final course averages are around 68%. You can expect that the *final class average* for this course will be similar.

Community Building

Inclusivity and Safe Classrooms

Our classroom is a community where students should feel included and are treated equitably. This refers to identities including, but not limited to, gender identity, gender expression, sex, race, ethnicity, socioeconomic background, sexual orientation, political and religious affiliation, disability, neurodivergence, health, and age. If controversial and/or sensitive issues arise, discussion is encouraged. However, students should feel safe to explore ideas without fear of being judged. If a statement or behaviour is likely to offend/alienate/discriminate against others, it should not be shared with the class. Instead, please share it with me during office hours. Any behaviour that compromises the safety of our environment or the belonging of a community member will not be tolerated, and you will be asked to leave the space (Zoom or in-person). If at any point during the semester you feel offended, threatened, or alienated by anything that happens during our class (including by me or a TA), please feel welcome to let me know.

One thing to keep in mind is that we are bound to make mistakes in this space, as does anyone when approaching complex topics. Strive to see your mistakes and others' as valuable elements of the learning process. I am also constantly learning from my mistakes.

A note on masking: I view masking as an example of accessibility, inclusivity, and classroom safety. While it is not a requirement, I encourage wearing a mask in class.

Accessibility

If you have accessibility needs, you are welcome in our classroom community. Here are some ways your teaching team is committed to increasing classroom accessibility:

- Offering online/asynchronous ways of engaging with the lecture portion of this course
- Wearing a mask during all student interactions.
- Accommodating flexibility around exams.
- Upholding classroom safety.
- Creating unambiguous instructions/expectations around grades.
- Sharing classroom content ahead of lectures.
- Posting comprehensive lecture notes.
- Honouring accommodations for all students, regardless of diagnosis, disability status, or affiliation with AccessAbility Services.
- Offering virtual one-on-one office hours on multiple days of the week with a flexible online booking system.
- Making closed captioned lectures and lecture transcripts available to all students.
- Including anonymous and non-speaking ways of engaging during lectures.

Seeking accommodations for your needs shouldn't be burdensome. **Accessibility and flexibility are built into the course and are available when needs arise. However, if you require an accommodation that is not automatically available to you, please contact me as soon as possible to work out a suitable arrangement.** You can reach out to me at the start of the semester and as needs arise/change, expected or unexpected. There is no expectation to divulge personal health information. I will advocate for you if you have a need that isn't being met.

Additionally, if there is anything else you can think of that would make this course more accessible to you and your peers, please let me know!

Academic Integrity

Academic integrity is what all members of the UTSC community, from first-year undergraduates to publishing professors, aspire to when they do research. Having academic integrity means taking responsibility for and having pride in your work, especially when it connects through practices such as crediting the work of others.

Having strong academic integrity is a qualifying behaviour that welcomes you as a scholar to the academic community.

Academic Integrity is about being loyal and respectful to those who have created content and about encouraging you to create work independently that you can feel proud of. Working with academic integrity means:

- **Doing your own work:** everything you submit should be completed by you.
- **Avoiding collusion:** this involves working too closely with your peers without authorization.
- **Not sharing materials** provided to you in this course. Please respect the copyright surrounding the work I've put in to offer you this course. If you'd like to share the content I've created, please speak with me first.
- **Engaging** with the ideas of others, both past and present, in a variety of scholarly platforms such as research journals, books by academics, lectures, etc. But also...
- **Explicitly acknowledging** the sources of your knowledge, especially through accurate citation practices

As members of our learning community, I want to invite you to spend some time thinking about what academic integrity means to you. What behaviours can you and your classmates engage in to make sure you are achieving your learning objectives and that your work is something you can be proud to represent.

If you are at risk of breaching academic integrity due to external and extenuating circumstances or a lack of accessibility, please come talk to me about how we can make the classroom a place where these coping mechanisms aren't necessary.

University Code of Behaviour on Academic Matters

If there is a breach in academic integrity, you may face consequences as per the university policy. The [Code of Behaviour on Academic Matters](#) outlines what constitute academic dishonesty and the processes U of T takes for addressing academic offences.

My Teaching Values

Transparency

My intention is never to conceal my motives. If something is unclear, that's my mistake. Please point it out and I'll clarify. Your success in our class should not depend on your ability to “read between the lines” or correctly guess/assume what I am (or the university is) asking of you.

Non-hierarchical learning

I don't like to pretend that I am the expert. I may know more about certain topics than you, but I am confident that in other domains, you hold more knowledge and experience than I do. I invite you to share when I've said something wrong or when you have a better idea than me.

Student/Community-driven learning

If something I'm doing isn't conducive to your learning, I'm open to altering course. You are the ones paying for this education, and you deserve to learn in a way that is best for you.

Land Acknowledgment: The University of Toronto is located on land belonging to the Huron-Wendat, the Seneca, and the Mississaugas of the Credit. The Scarborough campus is also located on land belonging to the Anichnabeg, the Chippewa, and the Haudenosaunee peoples. In addition to settling on stolen traditional and ancestral land, we are occupying it for the purpose of participating in an educational system that was built on and continues to uphold colonial frameworks.

Many of us who are not indigenous have settled on this land because our families have wanted us to grow up in a safer environment with more opportunities. This includes me, Debra, a child of immigrant parents. It is important to me that I reflect on how settling here offers more opportunities for myself, like being a member of a world-renowned university, but comes at the expense of the Indigenous communities we perpetually displace and exclude. I invite you to reflect on your own positionality and what it means for you to be on this land.

To learn more about the land which we are occupying, as well as about land acknowledgements, visit [Native Land.ca](http://NativeLand.ca)

If you have ideas on how we can incorporate Indigenous ways of knowing into our classroom, I would be eager to learn.