

Clinical Neuroanatomy

ANAT 323 – Fall 2024

Course Syllabus

General Course Information

- Prerequisites:** ANAT 315 & 316 (Physical & Occupational Therapy students);
ANAT 214 & 314 (Honours Anatomy & Cell Biology students)
- Restrictions:** Restricted to Honours Anatomy & Cell Biology students and Physical & Occupational Therapy students (or with instructor permission, space permitting; not open to students taking or who have taken ANAT 321)
- Number of Credits:** 3 credits

Lectures

Days & Time: Tuesdays & Thursdays @ 10:05–10:55 AM

Location: SADB 1/12

Labs

Day & Time: Mondays @ 9:35 – 11:25 AM

Location: SADB 1/56 (“Histology Lab”)

Teaching Team Information

Course Coordinator & Instructor:

Dr. Mikaela Stiver (she/her)

Assistant Professor

Email: mikaela.stiver@mcgill.ca

Office Hours & Location: Tuesdays 11:00 AM – 12:00 PM (SADB 1/38) or by appointment

- Communication Plan: 1) Lectures & Labs → in person
2) Office hours → in person (see hours & location above)
3) Discussion boards → online on myCourses
4) Email for confidential inquiries only (response within 2–3 business days)

Teaching Assistants (TAs):

Naama Brezner

Email: naama.brezner@mail.mcgill.ca

Gianluca Guglietti

Email: gianluca.guglietti@mail.mcgill.ca

Undergraduate Course Assistants (UCAs):

Rania Khan

Email: rania.khan@mail.mcgill.ca

Sara Meisha

Email: sara.mesiha@mail.mcgill.ca

- Communication Plan: 1) Labs → in person
2) Discussion boards → online on myCourses
3) Select review sessions → in person

Course Details

Course Description:

- *How do we perceive pain?*
- *How do our eyes track the ball during a game of catch?*
- *How can we decipher structural damage from functional deficits (& vice versa)?*

Clinical Neuroanatomy (ANAT 323) will provide students with an in-depth understanding of the human nervous system with an emphasis on the central nervous system. This course will focus on structural and functional relationships, enabling students to gain an appreciation for both function and dysfunction of the nervous system. ANAT 323 will consist of weekly lectures complemented by interactive labs during which students will explore and study the human nervous system using prosected cadaveric specimens, drawing, 3D models, medical imaging, clinical cases, and more.

Learning Outcomes:

Upon successful completion of this course, students will be able to...

1. Apply anatomical terminology to describe major structures, functions, directions, and relationships pertaining to the central nervous system
2. Identify major components of the skull and relate skeletal anatomy to the gross anatomy of the central nervous system
3. Identify all major components of the central nervous system on images, models, and wet specimens (as applicable)
4. Describe the course and connections of motor, sensory, and autonomic nerve pathways and relate structure with function throughout
5. Identify and discuss the structural and functional characteristics of the 12 pairs of cranial nerves and their associated nuclei, including their involvement in select reflex pathways
6. Discuss the blood supply to all major components of the central nervous system
7. Identify major cortical and subcortical features of the brain and discuss their functional significance, including their involvement in select pathways
8. Apply problem solving and critical thinking techniques to apply anatomical theory to common clinical scenarios (e.g., lesion localization and associated deficits)
9. Demonstrate professional respect and responsible care of human specimens

Detailed objectives for each lecture and lab are outlined in the corresponding PowerPoint slides and section of the lab manual, respectively.

Instructional Methods:

Lectures

ANAT 323 lectures will be synchronous (fixed), in person sessions held in SADB 1/12. **Students are expected to attend all lectures in person** to stay up to date with course content and get the most out of the scheduled contact hours. These lectures will also afford numerous opportunities to actively engage with the material, assess your own understanding, and ask questions in real time.

Note: Lectures scheduled on Tuesday, October 1st & Thursday, November 7th will be pre-recorded and posted on myCourses to allow for some 'breathing room' prior to the two midterm exams. The lecture time on these days will be reserved for informal (NOT recorded) Q&A in SADB, Room 1/12.

Labs

All ANAT 323 labs will be fixed (synchronous) sessions and will be held in person in SADB 1/56 ("Histology Lab"). The labs are designed to complement the content taught during the preceding two lectures and offer students an opportunity to consolidate and apply their knowledge.

Note: Labs are an **integral and mandatory component of this course**. Students' understanding of the content covered during these sessions will be evaluated with biweekly quizzes. Should a student be unable to participate in the weekly lab components for a particular reason, they should notify the course instructor immediately. Some labs will involve **prosected cadaveric specimens** (human material); therefore, students are required to abide by the rules and regulations of the Division of Anatomical Sciences at all times and be respectful and professional in their handling and discussion of these materials. All students must read and sign the **Code of Conduct Form** (available on myCourses) prior to Lab 1 on Monday, September 9th @ 9:35 AM.

Lecture Recordings

Lectures will be recorded using the Lecture Recording System (LRS), and recordings will be posted on myCourses within 24 hours; however, neither the quality nor availability of lecture recordings is guaranteed as both are limited by the LRS technology. **Lecture recordings are not guaranteed and should only be treated as a supplemental resource.**

Expectations for Student Participation

Lectures will be recorded using the Lecture Recording System (LRS), and recordings will be posted on myCourses within 24 hours; however, neither the quality nor availability of lecture recordings is guaranteed as both are limited by the LRS technology. **Lecture recordings are not guaranteed and should only be treated as a supplemental resource.**

Required & Recommended Resources

Technology:

- [myCourses](#) → navigate to the ANAT 323 (Clinical Neuroanatomy) – Fall 2021 Course Page
- [Slido](#) → web-based polling and Q&A system
 - To access Slido, select **Log in with Webex** and enter your McGill credentials
 - Your participation in the various in-class activities (e.g., review questions) will not be graded; however, these exercises will help give you a sense of the types of questions to expect on your exams and will provide you with a low-stakes opportunity to assess your progress throughout the course.

Textbooks:

A textbook is **not required** for this course; however, students are encouraged to purchase a textbook if it suits their study needs and habits. Several recommendations are included below, all of which are available at the LE JAMES McGill Bookstore. Earlier editions are also adequate.

- Krebs C, Weinberg J, Akesson E, Dilli E. *Lippincott Illustrated Reviews: Neuroscience*. 2nd ed. Wolters Kluwer; 2017.
- Crossman AR, Neary D. *Neuroanatomy: An Illustrated Colour Text*. 6th ed. Elsevier; 2019.
- Splittgerber R. *Snell's Clinical Neuroanatomy*. 8th ed. Wolters Kluwer; 2019.

Miscellaneous:

The following additional resources are highly recommended as there will be numerous drawing activities during both the lecture and lab components of this course

- Coloured pencils / crayons / markers (6+ colours)
- Notebook or blank paper

Assessment / Evaluation

Students will **NOT** be allowed to write quizzes, midterms, or exams prior to the scheduled dates. Quizzes, midterms, and finals will include both lecture and lab material. *The passing grade in the Faculties of Medicine and Education is 55%.*

Assessment	Details & Dates / Deadlines	% of Final Grade
Midterm #1*	Content from lectures 1–8 & labs 1–4 Date: October 2nd, 2024 @ 6:00 PM (SADB, M-1)	20–25%
Midterm #2*	Cumulative; emphasis on lectures 9–16 & labs 5–8 Date: November 7th, 2024 @ 6:00 PM (SADB, M-1)	20–25%
Quizzes**	Quiz A: Lab 1 + relevant lectures → Sept. 9 – 14 Quiz B: Labs 2–3 + relevant lectures → Sept. 23 – 28 Quiz C: Labs 4–5 + relevant lectures → Oct. 7 – 12 Quiz D: Labs 6–7 + relevant lectures → Oct. 28 – Nov. 2 Quiz E: Labs 8–9 + relevant lectures → Nov. 11 – 16 Quiz F: Labs 10–12 + relevant lectures → Dec. 2 – 5***	12% (3% each; best 4 out of 6 marks)
Multiple Choice Practice Questions	Students are responsible for creating 1 review question during each third of the course [<i>rubric on myCourses</i>] Due dates: Sept. 27, Nov. 4, & Dec. 5	3%
Final Exam	Cumulative (all lectures & labs); slight emphasis on untested content (i.e., lectures 17–24 & labs 9–12) Date: TBA (Exam Period: Dec. 6–20)	40%

*Weighting of Midterm #1 & Midterm #2 will be automatically adjusted to favour the higher grade; 45% total

**Quizzes will be available from Monday @ 12:00 PM until Saturday @ 12:00 PM on each applicable week

***Exception: Quiz F that will close on Thursday, December 5th @ 11:59 PM (midnight), prior to exams

Departmental Policies

A) Exam / In-Course Assessment Deferral:

A midterm exam or other in-course assessment (e.g., quiz, assignment) in a course administered by the Department of Anatomy & Cell Biology may only be deferred in the case of a **justified absence** due to serious illness or significant extenuating circumstances AND when **valid documentation** is received by the Course Coordinator within **FIVE working days** of the original midterm exam or assessment due date.

If the deferral request is accepted by the Course Instructor, students will be offered one of the following accommodations according to the assessment in question:

Midterm Exams: Students may choose to...

- Add the weight of the missed midterm exam to the final exam
- Write a deferred midterm within one week (5 working days) of the original exam date

Final Exam: Please refer to the [University policies regarding final examination deferral](#)

Lab Quizzes: The quizzes are designed to provide students with some leeway, allowing for TWO quiz grades to be dropped automatically without the need for documentation or justification; however, in the case that a student needs to miss *more than two quizzes*, the weighting will be divided equally amongst the remaining quizzes. There is no option to write a deferred lab quiz outside of the original timeframe.

Review Questions: This assignment is designed to help students prepare for the midterm and final exams and questions will be compiled into practice quizzes on myCourses. Accordingly, there will be no extensions on the due date for each third of the course. Students are encouraged to create and submit their practice questions as soon as possible following their assigned lecture for each section. Extenuating circumstances will be considered on a case-by-case basis.

B) Grading:

The Department of Anatomy & Cell Biology will **NOT** revise/upgrade marks, except on sound academic grounds. Once computed, the marks in this course will **NOT** be altered/increased arbitrarily. Decimal points will be “rounded off” as follows: if the final aggregate mark is computed to be 79.5%, the mark will be reported as 80% (an A-); a final aggregate mark of 79.4% will be reported as 79% (a B+). These marks are **FINAL and non-negotiable**.

Please see the full policy, including information on valid documentation requirements here:
<https://www.mcgill.ca/anatomy/undergraduate/policies-resources>

For information regarding regrading, please refer to the [University policies regarding reassessments of coursework & rereads of final exams](#).

McGill Policy Statements

A) Land Acknowledgement:

“McGill University is on land which has long served as a site of meeting and exchange amongst Indigenous peoples, including the Haudenosaunee and Anishinabeg nations. We acknowledge and thank the diverse Indigenous people whose footsteps have marked this territory on which peoples of the world now gather.”

« L'Université McGill est sur un emplacement qui a longtemps servi de lieu de rencontre et d'échange entre les peuples autochtones, y compris les nations Haudenosaunee et Anishinabeg. Nous reconnaissons et remercions les divers peuples autochtones dont les pas ont marqué ce territoire sur lequel les peuples du monde entier se réunissent maintenant. »

B) Academic Integrity:

“McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures” (see [McGill's guide to academic honesty](#) for more information). (Approved by Senate on 29 January 2003)

« L'université McGill attache une haute importance à l'honnêteté académique. Il incombe par conséquent à tous les étudiants de comprendre ce que l'on entend par tricherie, plagiat et autres infractions académiques, ainsi que les conséquences que peuvent avoir de telles actions, selon le Code de conduite de l'étudiant et des procédures disciplinaires (pour de plus amples renseignements, veuillez consulter le [guide pour l'honnêteté académique de McGill](#)). »

C) Language of Submission:

“In accord with McGill University’s Charter of Students’ Rights, students in this course have the right to submit in English or in French any written work that is to be graded. This does not apply to courses in which acquiring proficiency in a language is one of the objectives.” (Approved by Senate on 21 January 2009)

« Conformément à la Charte des droits de l’étudiant de l’Université McGill, chaque étudiant a le droit de soumettre en français ou en anglais tout travail écrit devant être noté (sauf dans le cas des cours dont l’un des objets est la maîtrise d’une langue). »

D) Assessment:

The purpose of the [Policy on Assessment of Student Learning](#) (PASL) is to provide a set of common principles to guide the assessment of students’ learning. Per PASL, assessment should be equitable and consistent, and promote effective learning experiences, a healthy learning environment, and academic integrity. Learn more on the [For Students](#) page of the PASL website.

E) © Instructor-Generated Course Materials (Intellectual Property):

Course materials (e.g., handouts, notes, summaries, exam questions) are protected by law and may not be copied or distributed in any form or in any medium without explicit permission of the instructor. Note that infringements of copyright can be subject to follow up by the University under the Code of Student Conduct and Disciplinary Procedures.

F) Students Requiring Accommodations:

As the instructor of this course, it is my goal to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss with me and Student Accessibility & Achievement (formerly the Office for Students with Disabilities [OSD]):

Office: 1010 Sherbrooke Street West, Suite 410

Phone: 514-398-6009

Email: access.achieve@mcgill.ca

G) End-of-Course Evaluations:

End-of-course evaluations are one of the ways that McGill works towards maintaining and improving the quality of courses and the student’s learning experience. You will be notified by email when the evaluations are available on [Mercury](#), the online course evaluation system. Please note that a minimum number of responses must be received for results to be available to students.

H) Extraordinary Circumstances:

In the event of extraordinary circumstances beyond the University’s control, the content and/or evaluation scheme in this course is subject to change.

This syllabus is an important document and should be saved for future reference. It may be needed for credit transfer, employment, certification, or licensing purposes.