

# Clinical Neuroanatomy

## ANAT 323 – Fall 2023

### Course Syllabus

#### General Course Information

- Prerequisites:** ANAT 315 & 316 (Physical & Occupational Therapy students);  
ANAT 214 & 314 (Honours Anatomy & Cell Biology students)
- Restrictions:** Only available to Honours Anatomy & Cell Biology students and Physical & Occupational Therapy students; not open to students taking or who have previously taken ANAT 321
- Number of Credits:** 3 credits

#### Lectures

**Days & Time:** Mondays & Wednesdays @ 3:35–4:25 PM  
**Location:** SADB 2/36

#### Labs

**Day & Time:** Mondays @ 9:35 – 11:25 AM  
**Location:** SADB 1/56 (“Histology Lab”)

#### Teaching Team Information

##### Course Instructor:

Dr. Mikaela Stiver (she/her)  
Assistant Professor  
Email: [mikaela.stiver@mcgill.ca](mailto:mikaela.stiver@mcgill.ca)  
Office Hours & Location: Mondays 11:30 AM – 12:30 PM (SADB 1/38) or by appointment

Communication Plan: 1) Lectures & Labs → in person  
2) Office hours → in person (see hours & location)  
3) Discussion boards → online on myCourses  
4) Email for confidential inquiries only (response within 48 hours)

##### Teaching Assistants:

Malak Abuzgaya  
Email: [malak.abuzgaya@mail.mcgill.ca](mailto:malak.abuzgaya@mail.mcgill.ca)

Roselyn Jiang  
Email: [ruiying.jiang@mail.mcgill.ca](mailto:ruiying.jiang@mail.mcgill.ca)

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

## 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 Method:

#### 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.

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.**

**Note:** Lectures scheduled on Wednesday, October 4<sup>th</sup> & Wednesday, November 15<sup>th</sup> 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 allocated for Q&A.

## 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 11th @ 9:35 AM.

## Required & Recommended Resources

### Technology:

- [myCourses](#) → navigate to the ANAT 323 (Clinical Neuroanatomy) - Fall 2021 Course Page
- [Slido](#) → As of August 25th, 2022, TurningPoint was replaced at McGill with a more streamlined and easier to use tool called Slido
  - To access Slido, click **Log in** (top right), select **Log in with Webex**, and enter your McGill credentials
  - Your participation in the various in-class activities and ‘quizzes’ 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. A brief list of recommendations from the course instructor 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. The final exam will be cumulative. The midterm and final exams will include both lecture and lab material. *The passing grade in the Faculty of Medicine and Education is 55%.*

Assessment	Details & Dates / Deadlines	% of Final Grade
<b>Midterm #1</b>	Content from lectures 1–8 & labs 1–4 Date: October 12th, 2023 @ 6:00 PM (SADB, M-1)	22.5%**
<b>Midterm #2</b>	Cumulative; emphasis on lectures 9–16 & labs 5–8 Date: November 16th, 2023 @ 6:00 PM (SADB, M-1)	22.5%**
<b>Lab Quizzes*</b>	Quiz A: Labs 1 & 2 → Sept. 18 – 23 Quiz B: Labs 3 & 4 → Oct. 2 – 7 Quiz C: Labs 5 & 6 → Oct. 23 – 28 Quiz D: Labs 7 & 8 → Nov. 6 – 11 Quiz E: Labs 9 & 10 → Nov. 20 – 25 Quiz F: Labs 11 & 12 → Nov. 30 – Dec. 5	15% (3% each; best 5 out of 6 marks)
<b>Final Exam</b>	Cumulative (all lectures & labs); slight emphasis on untested content (i.e., lectures 16–24 & labs 9–12) Date: TBA (Exam Period: Dec. 7–21)	40%

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

\*\*After Midterm #1, students may choose to reweight Midterm #1 and #2 to 20% and 25%, respectively — this decision must be submitted to Dr. Stiver via email by November 10th @ 11:59 PM

## 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

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

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

## **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)

Note: In courses in which acquiring proficiency in a language is one of the objectives, the assessments shall be in the language of the course.

« 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) © Instructor-Generated Course Materials:**

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.

**E) 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](mailto:access.achieve@mcgill.ca)

**F) 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.

**G) 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.**