

COURSE SYLLABUS:



ANAT 314: HUMAN MUSCULOSKELETAL ANATOMY

General Information

Course and Section #:	ANAT 314 - 001
Term and Year:	Winter 2024
Course schedule:	- Lectures: Wed/Fri; 3:35pm – 4:25pm (Location: Strathcona 2/36) - Laboratory: Thursdays 9:35-11:25am (Location: SADB rm 2/49 or 1/56)
Number of credits	3 credits

Instructor Information

Course coordinator:	Dr. Campbell Rolian (BSc, MA, PhD), Associate Professor
E-mail:	campbell.rolian@mcgill.ca
Office:	SADB rm: 1/35A
Office hours:	By appointment
Communication plan:	1. Class time, Lab time and Office hours (by appointment) 2. Discussion board via MyCourses 3. E-mail for specific course inquiries (anticipated response time: 2-3 days)

TA Information

Name:	Carol Wissa
E-mail:	carol.wissa@mcgill.ca
Communication plan:	1. Anatomy labs 2. Discussion boards via MyCourses

Course Description

Human Musculoskeletal Anatomy (ANAT 314) is designed to provide students with detailed knowledge of human gross anatomy as it relates to the musculoskeletal system, discussing both the structural and functional relationships of the structures within this body system. Emphasis will be placed on the following topics: skeletal morphology, muscle identification and function, joint classification and movement, as well as the neurovascular supply of the musculoskeletal system. The course will follow a **regional approach** to the musculoskeletal system, beginning with the trunk, followed by the lower limb, and ending with the upper limb. This course also includes a weekly laboratory component in which students will have the opportunity to study and explore the human body through anatomical models and cadaveric preparations (prosections).

Learning Outcomes

By the end of this course, students will be able to ...

1. Comfortably use anatomical terminology to describe structural characteristics, specimen/image orientation, location, and types of movement.
2. Outline and discuss the major components and morphological features of the axial and appendicular skeletons.
3. Discuss and describe the classifications and movements of the joints of the trunk and limbs of the body.
4. Describe the anatomical structures related to the function and support of these joints (e.g., ligaments).
5. Identify the muscles of the trunk and limbs of the body, describe their function, and outline their organizational relationship to other structures.
6. Outline the skeletal attachments of the muscles of the trunk and limbs.
7. Identify the neurovascular structures of the trunk and limbs. Outline their course through the body and describe the function they provide at their peripheral target (type of innervation or blood supply).
8. Identify and describe all above mentioned structures on anatomical models and cadaveric specimens.
9. Carry out problem solving and critical thinking techniques to apply anatomical theory to simple clinical situations.
10. Demonstrate professional respect and responsible care of human specimens.

Please refer to each individual lecture file for topic/content specific learner objectives.

Instructional Method

Lectures: ANAT314 lectures will be delivered in person at the times and location specified above. Efforts will be made to record all in-person lectures, with recordings to be posted to MyCourses after lectures. The delay for posting recordings is outside the control of the instructor, and varies from 1 to 4 days. Note that the recordings are a supplement to your learning, and will not capture everything (e.g., use of anatomical models on the classroom document cameras, illustration of movements). Finally, these recordings are a privilege, not a right, and students are expected to attend lectures. Should in-class attendance fall below acceptable levels, the instructor reserves the right to stop recording/posting lectures.

Laboratories: All ANAT314 laboratory sessions will be held in-person in the Anatomy Lab (SADB rm 2/49), except for the lab on February 29 (leg and foot), which will take place in SADB rm 1/56. In-person labs will **NOT** be recorded. The expectation is that students actively participate during in-person laboratory sessions on a weekly basis; this requires that students prepare before coming to lab. Labs will be carried out in a small groups and discussions will be facilitated by Undergraduate Course Assistants (UCAs) and the teaching staff. It is also the expectation that students conduct themselves in a **professional and respectful** manner. The University recognizes the importance of maintaining teaching spaces that are respectful and inclusive for all involved. To this end, offensive, violent, disrespectful, or harmful language in our learning environments will not be tolerated.

PLEASE NOTE: The lab component is an integral part of this course; it is therefore essential for students to participate fully in both components of this course in order to understand the material and to optimize success. Should a student be unable to participate in the weekly lab indefinitely, they will not be able to complete the course. These students should consult with their student affairs advisor to discuss alternative solutions. Labs will involve the review of previously dissected material (known as prosections). Students are required to wear personal protective equipment (NOT provided, see below for details), and to abide by the safety regulations of

the Anatomy lab, at all times. All students must read and electronically sign off on the **Code of Conduct Form** via MyCourses. Students will not be provided access to course content on MyCourses, nor to the Anatomy lab, without confirmation of their signing to the Anatomy Laboratory Code of Conduct. **There will be no make-up labs. It is your responsibility to catch up on lecture/lab content you may have missed.**

COVID contingency plan

We will continue to follow the guidelines and instructions from McGill University related to COVID protocols. In the event that an outbreak leads to a university closure, we will shift to an online format for lectures and/or labs. More instructions will be provided at that time, please check myCourses and your email regularly for any relevant course updates.

COVID-related protocols

- If you are experiencing COVID-compatible symptoms, have tested positive for COVID, or have been in contact with an individual who as tested positive for COVID, please stay home, and follow public health directives concerning isolation/quarantine.
- Masks are optional but encouraged in all learning environments, including in the Anatomy Lab. Please respect individuals' personal choice regarding the use of masks.

Technologies We Will Use:

- [myCourses](#) – course content, important documents, discussion board
- Zoom web conferencing tool – lectures and/or labs in the event of a COVID outbreak, and occasionally for optional review sessions. Information for students can be found [here](#).
- Online polling platforms: We may occasionally use free web-based polling systems in class, to assess students' learning and encourage classroom participation. This participation is not graded, but will help give you an idea of the types of questions found on this course's exams.

Course Materials

Lecture and lab notes: Lecture notes and lab guides in PDF format will be posted to MyCourses 1-2 days before they are scheduled. No copies of lab guides are provided in lab: it is the students' responsibility to bring printed copies for use in the lab. Furthermore, **the use of laptops, tablets, or other electronic devices (e.g., cell phones) for the purposes of taking notes digitally during lab is strictly prohibited.** Students should print out notes, and if needed (e.g., paper is soiled), take pictures of the notes with their devices once *outside* the laboratory space and dispose of the printed lab notes properly.

Textbook Resources: Textbooks are **not required** for ANAT314. The instructor's recommendations are below. Students are encouraged to purchase a textbook that suits their study needs and habits. Copies can be ordered through Le James or online retailers.

- Gilroy, A. (2022) "Anatomy an Essential Textbook", 2nd Ed. Thieme, New York, 2022
- Gilroy, A. (2016) "Atlas of Anatomy", 3rd Ed, Thieme, New York,
- Rohen, J.W., Yokochi, C., Lutjen-Dreoll, E. (2015). "Anatomy: A Photographic Atlas", 9th Ed. Wolters Kluwer, Philadelphia. **(eBook available through McGill Library)**
- Drake, R.L., Vogl, W., Mitchell, A.W.M. (2024). "Gray's Anatomy for Students", 5th Ed. Elsevier, Philadelphia. **(eBook available through McGill Library)**

Textbooks have been put on reserve at McGill Libraries; earlier versions of these textbooks are adequate. Other texts such as Netter's Atlas and Moore's Clinical Anatomy are also sufficient for this course. The Library links to online materials (both e-books and e-journal articles.)

Digital Resources: Several online platforms for human anatomy exist, and many students like these for the flexibility and ability to visualize anatomical structures in 3D in an interactive manner. Many apps have a short trial period, but the full features of most require a subscription. We have previously used the following, and found it to be engaging, accurate, with high production value:

- Complete Anatomy, by 3D4Medical <https://3d4medical.com/student>. As of writing, an annual student subscription is on sale for 49.99\$CAD.

Other materials to acquire: To participate in in-person anatomy laboratory sessions, students **ARE REQUIRED** to bring with them the following list of items, many of which can be purchased at the University Bookstore.

1. a lab coat (preferably knee length)
2. ocular protection (safety glasses or a face shield)
3. close-toed shoes
4. disposable gloves (purchase a box or two for semester, can also share box among several students)
5. combination/key lock – as your personal bags/belongings are not permitted inside the anatomy laboratory, you can store them during lab in lockers in the Strathcona building

Learner Assessment/Evaluation

Students will **NOT** be allowed to write exams prior to the scheduled date. The final exams will be cumulative. The midterm and final exams will include both lecture and lab material. For ALL course assessments, those in-term and those in the final exam period, students are **NOT** permitted to (1) work together (all work is individual), (2) access outside resources on the web or on their devices and (3) share, circulate or distribute assessment questions, etc. See statement on academic integrity at the end of this syllabus.

ASSESSMENT	ASSESSMENT DETAIL & DEADLINES	% OF FINAL GRADE
Midterm	Monday February 26th , 6:30-7:30pm (details to follow) Included content: Lectures 2-13 , and Lab 1 .	25%
Lab Quizzes (online)	Quiz 1 → Content: labs 1-4; available 08/02 at 5pm to 09/02 at 11pm (30 hrs) Quiz 2 → Content: labs 5-8; available 14/03 at 5pm to 15/03 at 11pm (30 hrs) Quiz 3 → Content: labs 9-12; available 10/04 at 5pm to 11/04 at 11pm (30 hrs)	10% (3.3% each)
Final Lab Exam	Time: TBD (Winter exam period, April), in SADB 2/49 (Anatomy Lab) Content: Cumulative – all laboratory content	25%
Final Exam	Time/place: TBD (Winter exam period, April) Content: Cumulative, but weighted towards post-midterm Lectures 14-25	35%
Completion Marks	1% each for completing the 3 Lab Quizzes as well as the practice question sets that will be made available prior to the midterm and final written exams (1 each).	5%

Information concerning Lab Quizzes: The three lab quizzes during the semester will be completed online via MyCourses, and each will consist of 10 images of anatomical specimens with 2 **short-answer** questions per specimen (20 points total) relating to the lab content covered in each, as described above (i.e., lab quizzes are non-cumulative). All online quizzes will **begin at 5pm on the specified date and end at 11pm on the following day (30-hour window, single attempt)**. These assessments in myCourses are to be completed on your own, without access to outside resources. You will be asked to sign an academic integrity statement before gaining access to the quizzes. The quizzes will be TIMED (15 minutes), and FORWARD ONLY assessments, meaning that you will NOT be able to revisit completed/submitted questions. This format was chosen to closely model the bell-ringer style of assessment students complete in the anatomy lab during the exam period.

Information concerning Completion Marks: You will receive 1% for each lab quiz you complete (3x), and 1% each for the practice written exam question sets that will be made available: (1) a few days before the midterm (February 26th), and (2) 5-6 days before the final exam (date TBD during December exam period). These completion marks are awarded as long as you complete the sets, regardless of your scores and the number of attempts. The practice question sets and online lab quizzes are designed to help you gauge your understanding of the material and to give you examples of the types of questions that will be on the two written examinations and final lab exam. **Don't leave these 5% on the table, they can literally change your final letter grade!**

Department of Anatomy and Cell Biology Policy Statements

Departmental Policy on Midterm Exam/In-Course Assessment Deferrals

A midterm exam or other in-course assessment (i.e. quiz, assignment, paper, etc.) 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 due date.

If the deferral request is accepted by the Course Coordinator, students may be offered one or both of the accommodations below, depending on the grading structure of the course:

- (a) Add the weight of the in-course assessment to another course component
- (b) Write a deferred midterm exam/submit a deferred assessment which will be scheduled/due within 10 days of the original midterm exam/due date

Midterm Exam: when choosing the following option described above...

- (a) The weight of the midterm will be added to the final exam (25% + 35% = 60%)
- (b) A deferred midterm will be written in the week immediately following the original midterm date.

Lab Quizzes: Students will only be able to add the weight of a deferred lab quiz to the remaining lab quizzes equally. If all three lab quizzes are deferred, the weighting will be added to the weight of the Final Lab Exam. Writing a lab quiz outside of the provided timeframe **will not be permitted**.

Departmental policy on Final Exam Deferrals (Laboratory and Written)

Requests to defer a final **LAB** exam for an ANAT course scheduled during the final exam period must be made directly to the Course Coordinator using the request form found on the departmental website:

www.mcgill.ca/anatomy/undergraduate/policies-resources.

Requests to defer a final **WRITTEN** exam scheduled during the final exam period must be made using the deferred exam application in Minerva: www.mcgill.ca/exams/dates/supdefer.

Students registered with Student Accessibility & Achievement (formerly OSD) may request to complete a deferred lab exam with Student Accessibility & Achievement in accordance with the deadlines and procedures set out by that office, as per the Departmental policy on accommodations for anatomy lab exams.

All deferred anatomy lab exams will be delivered in the same format as the original lab exam.

Timing of deferred final lab exams:

- Fall semester classes: Date to be set within the Winter Add/Drop period, in consultation with students.
- Winter semester classes: Date to be set during the first week of May, in consultation with students.

Departmental policy on accommodations for anatomy lab exams

Students registered with Student Accessibility & Achievement (formerly OSD) who are eligible for exam accommodations and want to request accommodations for an anatomy lab exam must make their request directly to Student Accessibility & Achievement in accordance with the deadlines and procedures set out by that office.

Lab exams written with Student Accessibility & Achievement will be in the format of a slide-based exam consisting of images equivalent to the specimens used for the in-person lab exam.

Students approved to complete a lab exam with Student Accessibility & Achievement have the option to choose to forgo their accommodations and complete the exam in-person in the anatomy lab with the rest of the class.

Departmental policy on 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://mcgill.ca/anatomy/undergraduate/policies-resources>

The use of electronic devices for the purpose of taking/saving **images of ANY laboratory content, either for personal use or to post on third party websites, is STRICTLY PROHIBITED**. Such actions are in direct breach of the Lab Code of Conduct you will sign, and of the **Criminal Code of Canada (R.S.C., 1985, c. C-46, Section 182)**: <https://laws-lois.justice.gc.ca/eng/acts/C-46/section-182.html>. Students in breach of this rule will be removed from the lab indefinitely, and referred to the appropriate body for disciplinary action.

McGill University Policy Statements

Reassessments and Rereads

Please see the eCalendar for policies regarding reassessments of coursework and rereads of final exams:
www.mcgill.ca/study/university_regulations_and_resources/undergraduate/gi_final_examinations

Language of Submission

In accord with McGill University's Charter of Student 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.

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." (Approved by Senate on 29 January 2003) (See McGill's guide to academic honesty for more information.)

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.

Additional Statements:

- The [University Student Assessment Policy](#) exists to ensure fair and equitable academic assessment for all students and to protect students from excessive workloads. All students and instructors are encouraged to review this Policy, which addresses multiple aspects and methods of student assessment, e.g. the timing of evaluation due dates and weighting of final examinations.
- Note that to support academic integrity, your assignments may be submitted to text-matching or other appropriate software (e.g., formula-, equation-, and graph-matching).
- Copyright: Instructor-generated course materials (e.g., handouts, slide decks, 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. This includes posting such material to third-party websites **such as StuDocu, Course Hero, and others**. Note that infringements of copyright can be subject to follow up by the University under the Code of Student Conduct and Disciplinary Procedures.
- *As the instructor of this course I endeavor to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with the Office for Student Accessibility and Achievement, 514-398-6009.*

- Many students may face mental health challenges that can impact not only their academic success but also their ability to thrive in our campus community. Please reach out for support when you need it; many [resources](#) are available on-campus, off-campus, and online.
- Content warning: Please be aware that some of the course content may be disturbing for some students. It has been included in the course because it directly relates to the learning outcomes. Please contact the instructor if you have specific concerns about this.
- [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 e-mail when the evaluations are available. Please note that a minimum number of responses must be received for results to be available to students.
- In the event of extraordinary circumstances beyond the University's control, the content and/or evaluation scheme in this course is subject to change.
- Additional policies governing academic issues which affect students can be found in the McGill Charter of Students' Rights (see [document](#)).
- McGill has policies on sustainability, paper use and other initiatives to promote a culture of sustainability at McGill. (See the [Office of Sustainability](#).)
- Guidelines for the use of mobile computing and communications (MC2) devices in classes at McGill have been approved by the APC. Consult the [Guidelines](#) for a range of sample wording that may be used or adapted by instructors on their course outlines.

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.

**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.**

Week	Wednesday Lecture SADB 2/36 – 3:35-4:25		Thursday Lab SADB 2/49 – 9:35-11:25		Friday Lecture SADB 2/36 – 3:35-4:25	
1	Jan 3	No lecture	Jan 4	No Lab	Jan 5	Lecture 1 – Course introduction
2	Jan 10	Lecture 2 – Bones, joints, and muscles	Jan 11	Lab 1 – MSK systems & basic biomechanics	Jan 12	Lecture 3 – Peripheral nervous system
3	Jan 17	Lecture 4 – Axial skeleton	Jan 18	Lab 2 – Axial skeleton	Jan 19	Lecture 5 – Back muscles
4	Jan 24	Lecture 6 – Neck muscles	Jan 25	Lab 3 – Back and neck muscles	Jan 26	Lecture 7 – Thoracic wall
5	Jan 31	Lecture 8 – Abdominal wall	Feb 1	Lab 4 – Thoracic & abdominal walls	Feb 2	Lecture 9 – Intro to lower limb
6	Feb 7	Lecture 10 – Hip and gluteal region	Feb 8	Lab 5 – Hip and gluteal region	Feb 9	Lecture 11 – Lumbosacral plexus
			Lab Quiz 1 (online) – Labs 1-4 – opens Feb 8 5pm, closes Feb 9 11pm			
7	Feb 14	Lecture 12 – Ant. and medial thigh	Feb 15	Lab 6 – Anterior and medial thigh	Feb 16	Lecture 13 – Posterior thigh and knee
8	Feb 21	Lecture 14 – Leg and foot - bones & joints	Feb 22	Lab 7 - Posterior thigh, knee, and leg	Feb 23	Lecture 15 – Leg and foot - muscles
9	Feb 26	Midterm (TBD)	Feb 29	Lab 8 - Leg and foot NOTE location: SADB 1/56	Mar 1	Lecture 17 – Intro to upper limb – pectoral girdle
	Feb 28	Lecture 16 – Intrinsic Foot				
10	Mar 6	Enjoy your break!	Mar 7	No Lab	Mar 8	Hope you're still enjoying your break!
11	Mar 13	Lecture 18 – Shoulder	Mar 14	Lab 9 – Pectoral girdle, shoulder	Mar 15	Lecture 19 – Axilla and brachial plexus
			Lab Quiz 2 (online) – Labs 5-8 – opens Mar 14 5pm, closes Mar 15 11pm			
12	Mar 20	Lecture 20 – Arm and elbow	Mar 21	Lab 10 – Brachial plexus and arm	Mar 22	Lecture 21 – Anterior forearm and hand
13	Mar 27	Lecture 22 – Posterior forearm and hand	Mar 28	Lab 11 - Forearm and hand	Mar 29	No lecture
14	Apr 3	Lecture 23 – Intrinsic hand	Apr 4	Lab 12 – Intrinsic Hand	Apr 5	Lecture 24 – Upper limb evolutionary anatomy
15	Apr 10	Lecture 25 – Lower limb evolutionary anatomy	Apr 11	No Lab	Apr 12	Lecture 26 – Wrap-up
	Lab Quiz 3 (online) – Labs 9-12 – opens Apr 10 5pm, closes Apr 11 11pm					