

Human Neuroanatomy Syllabus

Department of Medical Neuroscience

NESC 3440.03 Fall 2023

Dalhousie University acknowledges that we are in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq People and pays respect to the Indigenous knowledges held by the Mi'kmaq People, and to the wisdom of their Elders past and present. The Mi'kmaq People signed Peace and Friendship Treaties with the Crown, and section 35 of the Constitution Act, 1982 recognizes and affirms Aboriginal and Treaty rights. We are all Treaty people.

Dalhousie University also acknowledges the histories, contributions, and legacies of African Nova Scotians, who have been here for over 400 years.

Course Instructor

Instructor & Course Coordinator: Dr. Adam Johnston, Department of Medical Neuroscience

Office Hours: by appointment

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Other Course Instructor(s)

Name	Email	Office Hours
Dr. Victor Rafuse	Victor.Rafuse@dal.ca	By appointment
Dr. Angelo Iulianella	Angelo.Iulianella@dal.ca	By appointment
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Course Description

This is a survey of the structure and function of the human central nervous system (CNS, the brain and spinal cord). The laboratory component provides the opportunity to dissect the human brain and to study the microscopic anatomy of the CNS.

Course Prerequisites

BIOL 2020.03 or permission of the instructor

Course Exclusions

None

Course Structure

Course Delivery - In person.

Lectures - MWF 10:35-11:25, Tupper Theatre D.

Laboratories - 7, 1.5 hour labs, 2:35 - 3:55, Mondays. Tupper 12k

Tutorials - 2, 1 hour tutorials throughout the semester.

Course Materials

Textbook: John Nolte, The Human Brain, An introduction to its functional anatomy, 8th Edition 2021, Mosby Elsevier. Available in the Medical Bookstore and the 7th Edition is available, on a limited basis, online through the Dalhousie University Library.

Lab manual will be provided (uploaded to Brightspace)

Course Brightspace Page: <https://dal.brightspace.com/d2l/home/281316>

Assessment

Tests/Final Exam

Assessment	Weight (% of final grade)	Date
Midterm exam (1 hr)	25%	October 18
Lab exam (1 hr)	35%	December 4
Final exam (2 hr)	40%	Scheduled exam period

Conversion of numerical grades to final letter grades follows the

<u>Dalhousie Grade Scale</u>			
A+ (90-100)	B+ (77-79)	C+ (65-69)	D (50-54)
A (85-89)	B (73-76)	C (60-64)	F (0-49)
A- (80-84)	B- (70-72)	C- (55-59)	

Course Policies on Missed or Late Academic Requirements

Students who miss any of the exams will be given an opportunity to write a make-up exam at a mutually agreed date.

Course Policies related to Academic Integrity

Not applicable.

Learning Objectives

Upon completion of this course, students should be able to:

- describe the organization of the human central and peripheral nervous system
- identify major gross and microscopic components of the spinal cord, brainstem, cerebellum and forebrain
- describe the functional roles of key components of the spinal cord, brainstem, cerebellum and forebrain
- appreciate the impact of characteristic lesions of the central and peripheral nervous system produced by injury or disease

Course Content

<i>Week of</i>	<i>Monday Theatre D 10:35-11:25</i>	<i>Wednesday Theatre D 10:35-11:25</i>	<i>Friday Theatre D 10:35-11:25</i>	<i>Monday Tupper 12K 2:35-3:55 (Lab)</i>
Sep 4		Introduction to the course AJ	Introduction to the nervous system (1,3) AJ	
Sep 11	Surface anatomy and blood supply to the brain (6) VR	Development of the CNS I (2,5) AI	Development of the CNS II (2,5) AI	Lab 1: Blood supply & Surface Anatomy of the brain
Sep 18	Spinal cord I: Overview (10) TW		Spinal cord II: Ascending and descending pathways (10) TW	Lab 2: Spinal cord
Sep 25		Meninges & Ventricular System (4,5) VR	Brainstem and Cranial Nerves (11,12) VR	
Oct 2	<i>National Day for Truth and Reconciliation</i>	Brainstem and Cranial Nerves (11,12) VR	Brainstem and Cranial Nerves (11,12) VR	<i>National Day for Truth and Reconciliation</i>
Oct 9	<i>Thanksgiving</i>	Brainstem and Cranial Nerves (11,12) VR	Brainstem and Cranial Nerves (11,12) VR	<i>Thanksgiving</i>
Oct 16	Lecture Tutorial #1 TW	Midterm		Lab 3: Brainstem & Cranial Nerves I
Oct 23	Vision I Retina (17) WB	Vision II Central Pathways (17) WB	Hearing and balance (14) WB	Lab 4: Brainstem & Cranial Nerves II
Oct 30	Taste and Smell (13) WB	Cerebellum (20) YZ	Basal Ganglia (19) YZ	Lab 5: Cerebellum
Nov 6	Thalamus (16) YZ		Hypothalamus (23) AJ	Lab 6: Ventricular System, Basal Ganglia
Nov 13	STUDY BREAK	STUDY BREAK	STUDY BREAK	STUDY BREAK
Nov 20	Cerebrum (22) AJ		Limbic system (23) AJ	Lab 7: Limbic System and Hypothalamus
Nov 27	Lecture Tutorial #2 TW			
Dec 4	Lab Exam (AM) in 12K			Lab exam (PM) in 12K

REGULATIONS OF TEACHING LABORATORIES

The operation and use of the anatomy and microanatomy laboratories are subject to the Nova Scotia Anatomy Act, Nova Scotia Human Organ and Tissue Donation Act, Nova Scotia Occupational Health and Safety Act, and Canada Occupational Health and Safety Regulations. Your community and university have granted you a privilege to make use of human bodies, organs and tissues in your education. Your responsibilities include:

A. PROPER RESPECT FOR HUMAN REMAINS

1. Students may not take human body parts, organs or tissues out of the laboratories.
2. Visitors are not permitted in the teaching labs, unless authorized by the Head of the Department of Medical Neuroscience. Only teachers and registered students in Dalhousie anatomy and histology classes, and support staff are normally allowed in the teaching labs.
3. Photography is not allowed in the anatomy lab without the permission of the Department head or the course director.
4. Handle human bones (especially skulls) with great care. Replacement specimens are no longer available.
5. Handle all human remains with care and respect. Keep wet specimens moist. Place unneeded pieces in the appropriate containers.

B. OBSERVATION OF HEALTH AND SAFETY REGULATIONS for the benefit of yourself and others.

1. Eating and drinking are forbidden in the teaching labs. It is potentially dangerous to contaminate anything in the laboratory with fluids from the wet specimens. Do not bring food or beverage containers to the laboratories.
2. Lower limbs are to be completely covered by clothing. Open-toed shoes, shorts and skirts are not appropriate attire for the teaching laboratories.
3. Laboratory coats are required in the anatomy laboratory. They are also recommended in the neuroanatomy classes in the microanatomy lab.
4. Gloves are required for handling of human body parts and organs (especially brains).
5. Do not wear contact lenses in the anatomy laboratory. They can be affected by the fixatives used to preserve cadavers and anatomical specimens
6. Remove or clean your gloves after handling wet specimens and before touching books, atlases, microscopes, slides, models, or other materials in the teaching labs.
7. Keep your work area as clean and dry as possible.
8. Report any injuries acquired in the laboratory to a faculty member as soon as possible.

If students fail to comply with these regulations, faculty members are required to ask them to leave the laboratory. If violations are repeated, or deemed unprofessional, they will be reported to the appropriate official of the relevant school or faculty.

University Policies and Statements

Recognition of Mi'kmaq Territory

Dalhousie University would like to acknowledge that the University is on Traditional Mi'kmaq Territory. The Elders in Residence program provides students with access to First Nations elders for guidance, counsel, and support. Visit or e-mail the Indigenous Student Centre at 1321 Edward St or elders@dal.ca. Additional information regarding the Indigenous Student Centre can be found at: https://www.dal.ca/campus_life/communities/indigenous.html

Internationalization

At Dalhousie, 'thinking and acting globally' enhances the quality and impact of education, supporting learning that is "interdisciplinary, cross-cultural, global in reach, and orientated toward solving problems that extend across national borders." Additional internationalization information can be found at: <https://www.dal.ca/about-dal/internationalization.html>

Academic Integrity

At Dalhousie University, we are guided in all our work by the values of academic integrity: honesty, trust, fairness, responsibility, and respect. As a student, you are required to demonstrate these values in all the work you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity. Additional academic integrity information can be found at: https://www.dal.ca/dept/university_secretariat/academic-integrity.html

Accessibility

The Student Accessibility Centre is Dalhousie's centre of expertise for matters related to student accessibility and accommodation. If there are aspects of the design, instruction, and/or experiences within this course (online or in-person) that result in barriers to your inclusion, please contact the Student Accessibility Centre (https://www.dal.ca/campus_life/academic-support/accessibility.html) for all courses offered by Dalhousie with the exception of Truro. For courses offered by the Faculty of Agriculture, please contact the Student Success Centre in Truro (<https://www.dal.ca/about-dal/agricultural-campus/student-success-centre.html>)

Conduct in the Classroom – Culture of Respect

Substantial and constructive dialogue on challenging issues is an important part of academic inquiry and exchange. It requires willingness to listen and tolerance of opposing points of view. Consideration of individual differences and alternative viewpoints is required of all class members, towards each other, towards instructors, and towards guest speakers. While expressions of differing perspectives are welcome and encouraged, the words and language used should remain within acceptable bounds of civility and respect.

Diversity and Inclusion – Culture of Respect

Every person at Dalhousie has a right to be respected and safe. We believe inclusiveness is fundamental to education. We stand for equality. Dalhousie is strengthened in our diversity. We are a respectful and inclusive community. We are committed to being a place where everyone feels welcome and supported, which is why our Strategic Direction prioritizes fostering a culture of diversity and inclusiveness (Strategic Priority 5.2). Additional diversity and inclusion information can be found at: <http://www.dal.ca/cultureofrespect.html>

Student Code of Conduct

Everyone at Dalhousie is expected to treat others with dignity and respect. The Code of Student Conduct allows Dalhousie to take disciplinary action if students don't follow this community expectation. When appropriate, violations of the code can be resolved in a reasonable and informal manner - perhaps through a restorative justice process. If an informal resolution can't be reached, or would be inappropriate, procedures exist for formal dispute resolution. The full Code of Student Conduct can be found at:

https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html

Fair Dealing Policy

The Dalhousie University Fair Dealing Policy provides guidance for the limited use of copyright protected material without the risk of infringement and without having to seek the permission of copyright owners. It is intended to provide a balance between the rights of creators and the rights of users at Dalhousie. Additional information regarding the Fair Dealing Policy can be found at:

https://www.dal.ca/dept/university_secretariat/policies/academic/fair-dealing-policy-.html

Originality Checking Software

The course instructor may use Dalhousie's approved originality checking software and Google to check the originality of any work submitted for credit, in accordance with the Student Submission of Assignments and Use of Originality Checking Software Policy. Students are free, without penalty of grade, to choose an alternative method of attesting to the authenticity of their work and must inform the instructor no later than the last day to add/drop classes of their intent to choose an alternate method. Additional information regarding Originality Checking Software can be found at:

https://www.dal.ca/dept/university_secretariat/policies/academic/student-submission-of-assignments-and-use-of-originality-checking-software-policy-.html

Student Use of Course Materials

Course materials are designed for use as part of this course at Dalhousie University and are the property of the instructor unless otherwise stated. Third party copyrighted materials (such as books, journal articles, music, videos, etc.) have either been licensed for use in this course or fall under an exception or limitation in Canadian Copyright law. Copying this course material for distribution (e.g. uploading to a commercial third-party website) may lead to a violation of Copyright law.