

NSCI 311: ADVANCED NEUROANATOMY

SYLLABUS

ACKNOWLEDGEMENT

UBC's Point Grey Campus is located on the traditional, ancestral, and unceded territory of the xwməθkwəyəm (Musqueam) people. The land it is situated on has always been a place of learning for the Musqueam people, who for millennia have passed on their culture, history, and traditions from one generation to the next on this site.

COURSE INFORMATION

Course Title	Course Code Number	Credit Value	Room
Advanced Neuroanatomy	NSCI 311	3	AERL-120

PREREQUISITES

NSCI 200

CONTACTS

Course Instructor(s)	Contact Details	Office Location	Office Hours
Dr. Claudia Krebs Professor of Teaching	Claudia.Krebs@ubc.ca	LSC 1544	By appointment on Zoom or in person

TEACHING ASSISTANTS

Course Instructor(s)	Contact Details	Office Location	Office Hours
Cristina Schaurich			By appointment on Zoom
Chris Lamb			By appointment on Zoom

We will attempt to respond to emails within 24 hours Monday to Friday

COURSE DESCRIPTION AND STRUCTURE

This course covers the functional neuroanatomy of the human brain.

The course will use a “flipped classroom” format where students are expected to review didactic material in the form of videos and e-tutorials prior to the in class session. Students will be given instruction in advance which materials to prepare and when. In class sessions will be synchronous and in person.

The course will also include two neuroanatomy lab sessions.

COURSE SCHEDULE AND SCHEDULE OF TOPICS

Mondays and Wednesdays 9:30-11am, synchronously. All session details and materials will be posted on Canvas at least one week before the scheduled class. (Schedule may be subject to change)

A Whole New World		
Week 1: Overview of the Nervous System		
Sept 6, 2023	Introduction to NSCI 311 Neuroanatomy Bootcamp	Preparation for class is posted on Canvas Didactic session with discussion
Week 2: The Spinal Cord		
Sept 11, 2023	Development of the brain & spinal cord	Preparation for class is posted on Canvas Didactic session with discussion
Sept 13, 2023	Spinal Cord Organization & Tracts	Preparation for class is posted on Canvas Didactic session with discussion Homework 1 (4%): Build your own spinal cord
Interaction with the Environment		
Week 3: Sensory & Motor Systems		
Sept 18, 2023	The Motor System	Preparation for class is posted on Canvas Didactic session with discussion
QUIZ 1 (2%)		
Sept 20, 2023	The Sensory System	Preparation for class is posted on Canvas Didactic session with discussion
Week 4: Brainstem 1		
Sept 25, 2023	Overview of Cranial Nerves Organization of the Brainstem	Preparation for class is posted on Canvas Didactic session with discussion
Sept 27, 2023	Neuroanatomy Lab	Wet lab in the MPL Homework 2 (4%): Lab report
Week 5: Brainstem 2		
Oct 2, 2023	Truth & Reconciliation Day no class	Take this day to research Indigenous perspectives on the Mind-Body relationship and what the Indigenous perspective on your group project topic is
Oct 4, 2023	Eye Movements Saccades, Pursuit	Preparation for class is posted on Canvas Didactic session with discussion
QUIZ 2 (2%)		
Regulation of Consciousness, Networking		
Week 6: Brainstem 3		
Oct 9, 2023	Thanksgiving Day no class	
Oct 11, 2023	MIDTERM 1 (20%)	
THURSDAY Oct 12, 2023	Intrinsic Systems, Reticular Formation, Monoaminergic Neurotransmitter Systems	Preparation for class is posted on Canvas Didactic session with discussion
Our Cortex, our Humanity		

Week 7: Functional Areas of Cortex & the Connectome		
Oct 16, 2023	Overview of the cortex, primary areas and association areas, the connectome	Preparation for class is posted on Canvas Didactic session with discussion
Oct 18, 2023	The Visual System	Preparation for class is posted on Canvas Didactic session with discussion Homework 3 (4%): Discussion board
Week 8: Language & Humanity		
Oct 23, 2023	Language Processing	Preparation for class is posted on Canvas Didactic session with discussion
	QUIZ 3 (2%)	
Oct 25, 2023	Lateralization, Making the connectome work across hemispheres	Preparation for class is posted on Canvas Didactic session with discussion
Agency, Control of Cortical Output & Behaviour		
Week 9: Control of Movement		
Oct 30, 2023	Cerebellum	Preparation for class is posted on Canvas Didactic session with discussion
Nov 1, 2023	Basal Nuclei (aka Basal Ganglia)	Preparation for class is posted on Canvas Didactic session with discussion Homework 4 (4%): Mind & Mechanics
Integration as a Fundamental Way We Navigate the World		
Week 10: Sensorimotor Integration		
Nov 6, 2023	Sensorimotor integration	Preparation for class is posted on Canvas Didactic session with discussion
	QUIZ 4 (2%)	
Nov 8, 2023	MIDTERM 2 (20%)	
MIDTERM BREAK Nov 13-15		
Emotional Experience as a Key Part of our Humanity		
Week 11: The Limbic System		
Nov 20, 2023	The Limbic System	Preparation for class is posted on Canvas Didactic session with discussion
	QUIZ 5 (2%)	
Nov 22, 2023	Neuroanatomy lab	Wet lab in MPL Homework 5 (4%): Lab report
Pain: A Protective System that can be Imperfect		
Week 12: Pain		
Nov 27, 2023	Acute and Chronic Pain	Preparation for class is posted on Canvas Didactic session with discussion
Nov 29, 2023	Modulation of Pain	Preparation for class is posted on Canvas Didactic session with discussion
Course Wrap Up		

Week 13: Student Presentations		
Dec 4, 2023	Student presentations	See Canvas for details
Dec 6, 2023	Student presentations	See Canvas for details Take home essay questions (10%)

IMPORTANT DATES

Sept 6, 2023	First day of class
Sept 18, 2023	Homework 1 due QUIZ 1 (2%) Last day to withdraw without a "W"
Sept 27, 2023	Neuroanatomy lab
Oct 2, 2023	Truth & Reconciliation Day no class
Oct 4, 2023	Homework 2 due QUIZ 2 (2%)
Oct 9, 2023	Thanksgiving Day no class
Oct 11, 2023	MIDTERM 1 (20%)
THURSDAY Oct 12, 2023	"Make up Monday"
Oct 23, 2023	Homework 3 due QUIZ 3 (2%)
Oct 27, 2023	Last Day to withdraw with a "W"
Nov 6, 2023	Homework 4 due QUIZ 4 (2%)
Nov 8, 2023	MIDTERM 2 (20%)
Nov 20, 2023	QUIZ 5 (2%)
Nov 22, 2023	Neuroanatomy lab
Nov 27, 2023	Homework 5 due
Dec 4, 2023	Student presentations
Dec 6, 2023	Student presentations

LEARNING OUTCOMES

At course completion, the learner will

1. Identify the gross anatomy, structural organization and major landmarks of the brain and spinal cord, and describe the primary relationships between cortex and subcortical structures
2. Apply knowledge of functional neuroanatomy to typical clinical presentations
3. Translate information about neuroanatomy for a non-expert audience in a clear and engaging way

LEARNING ACTIVITIES

Asynchronous activities will include videos and e-tutorials posted on Canvas. The completion of these activities is mandatory before coming to class.

Synchronous learning will be in person as scheduled. The in-class activities will range from didactic explanations to small group projects with the supervision and help of the instructional team.

Homework assignments comprise 20% of the course mark, need to be completed on time and as an individual activity.

The group project is a term long project that comprises 20% of the course mark. Students will be assessed on content, delivery, and group dynamics.

GROUP PROJECT

You will be divided into small groups at the beginning of the course. Within these groups you will complete a **science communication project** on a neuroanatomy topic of your choice. A detailed project description and rubric will be posted on Canvas. You will have a TA advising your group and will communicate with them about the scope, breadth and depth of the project.

Important dates for the group project

Sept 6, 2023	Introduction of project
Sept 15, 2023	Check in #1 Roles in group, communication methods, collaboration methods
Sept 29, 2023	Check in #2 Topic has to be chosen, brief pitch for the type of deliverable (infographic, written, audio, video...)
Oct 13, 2023	Check in #3 Research on topic, contact with content experts?, Submission of at least 3 key papers that will be the basis of the deliverable
Oct 27, 2023	Check in #4 Storyboard for deliverable, What are you doing? Who is your audience?
Nov 24, 2023	Check in #5 Draft 1 of final deliverable, set up meeting with TA supervisor
Dec 1, 2023	OPTIONAL Check in #6 Final draft, last possibility for feedback
Dec 4, 2023	Submission of deliverable and presentation slides on Canvas - 9:30am!

LATE POLICY

Missed or late work:

Quizzes need to be completed by 11:59pm on the day they are published as indicated in the schedule.

Homework needs to be handed in on the Monday following the assignment.

Missed work will be marked as "0"

Late work will be penalized with a deduction of 10% per day, unless there are extenuating circumstances.

LEARNING MATERIALS

www.neuroanatomy.ca

Lippincott's Illustrated Reviews: Neuroscience

By: Claudia Krebs, Joanne Weinberg, Elizabeth Akesson & Esmā Dilli

Wolters Kluwer

ISBN 978- 1496367891

The book is available online through the library. There will be no assigned reading and this book is recommended, but not required.

Cost of learning materials for this course: \$0

ASSESSMENTS OF LEARNING

Assessment:

5 quizzes (online)	10%
Homework assignments	20%
Midterms	40%
Take home assignment	10%
Group Project	20%

Quizzes There will be 5 quizzes throughout the term. These quizzes will cover the material up to that session and they will be completed online. Quizzes need to be submitted at 11:59 pm on the day of the quiz

Homework assignments are assignments to be completed by the following Monday.

Midterm exams will include a combination of multiple-choice questions, fill-in the blank, short answer and paragraph questions.

Take home assignment will include questions relating to content after midterm 2 and will include questions about the student presentations.

Group project will include a deliverable (written, video, audio – see project description and rubric) and an in class presentation in week 13 of the course.

PARTICIPATION: Students are expected to ask/answer questions and come prepared for class. Class participation includes attendance, course preparation and participation in discussions and group work. Participation will be assessed peer to peer for the group project.

USE OF INTEGRITY STATEMENTS

You may be asked to agree to an academic integrity statement as part of testing or other assessment activities. As a UBC student, doing your part to adhere to course rules and upholding the academic integrity of your educational experience is in your best interest. Every effort will be made to ensure that assessment is fair for all students in the course. You can do your part by following the rules set out by your course instructors, and seeking assistance or clarification if you have any questions.

UNIVERSITY POLICIES

UBC provides resources to support student learning and to maintain healthy lifestyles but recognizes that sometimes crises arise and so there are additional resources to access including those for survivors of sexual violence. UBC values respect for the person and ideas of all members of the academic community. Harassment and discrimination are not tolerated nor is suppression of academic freedom. UBC provides appropriate accommodation for students with disabilities and for religious observances. UBC values academic honesty and students are expected to acknowledge the ideas generated by others and to uphold the highest academic standards in all of their actions. Details of the policies and how to access support are available on [the UBC Senate website](#).

OTHER COURSE POLICIES

LEARNING ANALYTICS

This course will be using the Canvas learning platform as the main interface and communication portal between the instructor and students. Canvas captures data about your activity and provides information that can be used to improve the quality of teaching and learning. In this course, I plan to use analytics data to:

- View overall class progress
- Track your progress in order to provide you with personalized feedback
- Review statistics on course content being accessed to support improvements in the course
- Track participation in discussion forums
- Assess your participation in the course

- Grade your assignments, and provide feedback

COPYRIGHT

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Students are NOT PERMITTED to record classes on their own devices, without explicit permission from the instructor and/or class facilitators.

ACADEMIC INTEGRITY – GENERATIVE AI

The use of generative AI (such as ChatGPT) for the completion of homework assignments and during the group project *is allowed* in this course. You need to put the output from the AI into a citation format and demonstrate how you fact-checked the information and how you used the information to build your knowledge. A simple copy-paste from an AI chatbot is not acceptable and will be considered academic dishonesty. Use generative AI as a tool for your learning and be transparent about its use.