BCSC/NSCI 252: Functional Neuroanatomy
Sarah McConnell, PhD
Syllabus
Spring 2026

Course Description

This course examines the structure and function of the nervous system and related support components, with the goal of understanding the various parts in the context of the unified whole. We also consider the implications of relevant injuries and diseases to develop the clinical reasoning involved in identifying and predicting the causes and consequences of neural damage. While these objectives are especially relevant for students considering medical school or graduate study in neuroscience, anyone who wants to understand the structure and function of the nervous system is welcome. Learning objectives will be addressed through lectures, laboratories, discussions, and student presentations. 4 credits.

Faculty Information

Sarah McConnell, PhD, Associate Professor, URMC Department of Neuroscience
Email: Sarah_McConnell@urmc.rochester.edu
Office: URMC 5-6321
Office hours: By appointment

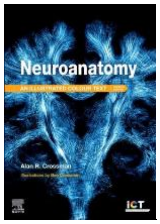
Course Meeting Time and Location

MW Lecture	10:25 AM – 11:40 AM	URSMD 3-6408 (K-307 Auditorium)
F Lab	2:00 PM – 3:15 PM	URSMD 5-8526

This course follows the College credit hour policy for four-credit courses. This course meets three times weekly for four academic hours per week.

Required Textbook

Alan R. Crossman. *Neuroanatomy: An Illustrated Colour Text.* Seventh Edition. 2024. Elsevier. ISBN: 978-0-443-11484-7



Note: This textbook is available as an ebook through the UR library system:
https://rochester.primo.exlibrisgroup.com/permalink/01ROCH_INST/1vg5sr1/alma9978738438505216

Course Prerequisites

BIOL 110 or equivalent

Grading

Course grades will be determined by the following criteria:

Two lab exams	30%
Cumulative written final exam	20%
Lab assignments – questions to answer prior to lab	15%
Individual presentation – on a neuroanatomical topic of your choice	15%
Team presentation – on a portrayal of neuroanatomy in pop culture	10%
Online quizzes – one each week	5%
Reflection journals – one each week	5%
Total	100%

Detailed information and instructions for each item will be available as they become relevant.

The following scale will be used as the basis for letter grades.

93-100%	A
90-92%	A-
87-89%	B+
83-86%	B
80-82%	B-
77-79%	C+
73-76%	C
70-72%	C-
60-69	D
<60%	E

Course Objectives

- Identify gross structures of the central nervous system in human brain specimens, diagrams, physical and virtual models, and radiologic imaging.
- Describe the organization and function of each structure in the context of the neural system(s) to which it contributes.
- Predict the functional consequences of lesions of various parts of the central and peripheral nervous systems, and determine likely sites of lesions based on functional deficits.
- Identify and describe the structure and function of neurons and glia, and relate them to the cytoarchitecture of selected structures of the central nervous system.
- Summarize the embryonic development of the central and peripheral nervous systems.
- Identify and describe the function of neural support structures, including the meninges, ventricles, cerebrospinal fluid, vasculature, skull, and vertebrae.
- Describe methods of studying the organization, connectivity, and function of neural structures.
- Develop attention to detail in anatomic observation and precision in anatomic description.
- Develop creativity, critical thinking, and oral communication.

Attendance
Students are expected to attend all class meetings on time. If you know about a conflict in advance, please notify the instructor by email as soon as possible, noting the date and nature of the conflict. If you need to miss class due to illness, injury, or other unforeseeable emergency, please notify the instructor by email as soon as possible. Reasons for excused absences include participation in University-sponsored athletic events or dramatic productions, surgery or other medical problems, and family emergencies. Students are responsible for all material covered, announcements made, and assignments due while absent. Habitual lateness and more than two unexcused absences will impact your course grade.

Participation
This course relies upon student discussion in small and large groups. Thus, students are expected to support a positive, productive learning environment for themselves and their peers by:

- Preparing well for each class and group meeting (*i.e.*, completing any assigned reading in advance and bringing ideas and questions to share in discussions)
- Speaking and listening respectfully

Continued enrollment in this course indicates your acceptance of the course policies and your commitment to engage with the course as fully as possible.

Make-up Exams
Make-up exams will only be given in the case of documented extenuating circumstances with the instructor's permission. If the extenuating circumstances are known in advance (scheduled surgery, conference presentation, application interview, etc.), permission must be obtained prior to the exam.

Late Penalties
Assignments submitted late will lose 10 percentage points per day.

Lecture Recording Policy
Making independent audio or video recordings of lectures raises issues regarding intellectual property and privacy of other students. Lecture recording by students is not permitted without approved disability accommodations or the instructor's permission.

Academic Honesty
All assignments and activities associated with this course must be performed in accordance with the University of Rochester's Academic Honesty Policy. More information is available at: http://www.rochester.edu/college/honesty

Accommodations for Students with Disabilities
The University of Rochester respects and welcomes students of all backgrounds and abilities. In the event you encounter any barrier(s) to full participation in this course due to the impact of a disability, please contact the Office of Disability Resources. The access coordinators in the Office of Disability Resources can meet with you to discuss the barriers you are experiencing and explain the eligibility process for establishing academic accommodations. You can reach

the Office of Disability Resources at: disability@rochester.edu; (585) 276-5075; Taylor Hall; www.rochester.edu/college/disability.

The process of securing accommodations takes time, so it is prudent to start early. Simply notifying me before a due date or exam is not sufficient since I am neither qualified nor permitted to determine diagnoses or appropriate accommodations.

Inclusion Statement

The University of Rochester, this course, and I are committed to inclusion, and welcome students of all backgrounds and abilities. Services and reasonable accommodations are available to students with temporary and permanent disabilities, to students with DACA or undocumented status, to students facing mental health issues, other personal situations, and to students with other kinds of learning needs. Please feel free to let me know if there are circumstances affecting your ability to participate in class or your full participation in this course.

Some resources that might be of use include:

- Office of Disability Resources. (disability@rochester.edu; (585) 276-5075; Taylor Hall)
- Undocumented/DACA Student Support Contacts https://www.rochester.edu/college/ccas/undergraduate/daca/index.html
- University of Rochester CARE Network https://www.rochester.edu/care/

Tentative Course Schedule

Every effort will be made to adhere to the planned schedule. The instructor reserves the right to change the schedule when necessary. Students will be notified of changes by class announcements, emails, and postings on Blackboard.

Week	Day	Date	Topic	Crossman Reading
1	W	1/21	Welcome; Neuroanatomy Overview; Methods	Ch 1
	F = M	1/23	Neurodevelopment 1	Ch 1
2	M	1/26	Neurodevelopment 2	Ch 1
	W	1/28	Meninges and Ventricles	Ch 5-6
	F	1/30	Lab: Meninges and Ventricles	Ch 5-6
3	M	2/2	Vasculature	Ch 7
	W	2/4	Bones	Ch 5
	F	2/6	Lab: Vasculature and Skull	Ch 5, 7
4	M	2/9	Spinal Cord	Ch 8
	W	2/11	Brainstem 1	Ch 9
	F	2/13	Lab: Spinal Cord and Vertebrae	Ch 8
5	M	2/16	Brainstem 2	Ch 9
	W	2/18	Cranial Nerves 1	Ch 10
	F	2/20	Lab: Brainstem, Cranial Nerves, and Cerebellum	Ch 9-11

6	M	2/23	Cranial Nerves 2	Ch 10
	W	2/25	Cerebellum	Ch 11
	F	2/27	Practice Lab Exam	Ch 5-11
7	M	3/2	Student Presentations 1	
	W	3/4	Student Presentations 2	
	F	3/6	**Lab Exam 1**	
Spring Break				
8	M	3/16	Diencephalon 1	Ch 12, 16
	W	3/18	Diencephalon 2	Ch 12, 16
	F	3/20	Lab: Diencephalon	Ch 12, 16
9	M	3/23	Telencephalon: Cerebral Cortex	Ch 13
	W	3/25	Telencephalic White Matter	Ch 13
	F	3/27	Lab: Cerebral Cortex and Subcortical White Matter	Ch 13
10	M	3/30	Basal Ganglia	Ch 14
	W	4/1	Limbic System	Ch 16
	F	4/3	Lab: Basal Ganglia and Limbic System	Ch 14, 16
11	M	4/6	Peripheral Nervous System	Ch 3
	W	4/8	Autonomic Nervous System 1	Ch 4
	F	4/10	Lab: Practice Lab Exam	Ch 12-14, 16
12	M	4/13	Autonomic Nervous System 2	Ch 4
	W	4/15	Student Presentations 3	
	F	4/17	**Lab Exam 2**	
13	M	4/20	Student Presentations 4	
	W	4/22	Student Presentations 5	
	F	4/24	Lab: Escape Room	
14	M	4/27	Presentations: Neuroanatomy in Pop Culture	
	W	4/29	Review	
	F	5/1	Conclusion Synthesis (in lab)	
	TBA by Registrar		**Cumulative Written Final Exam**	