Last updated August 28, 2023
NRSC 1110 / BIOL 1110 / PSYC 1210
Introduction to Brain and Behavior
Fall 2023

Lectures: MW 12-1:30, Tredori Family Auditorium, Levin Building
Recitation Sections: Times vary, 104 Leidy

Instructor Information:

Instructor: Nicole Rust   *'Professor Rust'*
Email: nrust@psych.upenn.edu *Email is always the best way to contact me
Office hours: Wednesdays 4-5p, Goddard 427 (conference room).

Head TA: Hannah Loo
Email: hloo@pennmedicine.upenn.edu

Education specialist: Jaffna Mathiaparanam
Email: Jaffna@Pennmedicine.upenn.edu
Bonus session hour: TBD

Recitation	TA	email
Tues 10:15-11:44AM	Mariela Lopez	Mariela.LopezValencia@Pennmedicine.upenn.edu
Tues 12:00-1:29PM	Bormeh Faryean	Joe.Faryean@Pennmedicine.upenn.edu
Tues 1:45-3:14PM	Corinna Oswell	Corinna.Oswell@Pennmedicine.upenn.edu
Tues 3:30-4:59PM	Marc Cordon	Marc.CarcelesCordon@Pennmedicine.upenn.edu
Thurs 10:15-11:44AM	Angela Bongiovanni	Angela.Bongiovanni@Pennmedicine.upenn.edu
Thurs 12:00-1:29PM	Ronni Kurzion	Ronni.Kurzion@Pennmedicine.upenn.edu
Thurs 1:45-3:14PM	Maggie Pecsok	Margaret.Pecsok@Pennmedicine.upenn.edu
Thurs 3:30-4:59PM	Aaron McKnight	Aaron.Mcknight@Pennmedicine.upenn.edu

Description:
This course will provide a comprehensive introduction to the nervous system, focusing on the structure and function of the human brain. We will begin with the basic biology and physiology of the cells of the nervous system (neurons and glia), the basics of how nerve cells communicate, and how the nervous system is organized. We will then move into an investigation of sensory systems (including smell, seeing, hearing, and touch) as well as movement. We will end with investigations of memory and brain dysfunction, including neurodegenerative disorders and mental illness. Lectures will be supplemented by recitation discussions that include a discussion of the material as well as lab activities to give you a more hands-on experience.

Course Goals:
Our goals are to support you in developing the skills:
- to understand and explain how common principals govern the organization and function of the systems and processes within the nervous system
- to build and modify models of scientific concepts and processes
- to think through the consequences of disrupting or modifying a biological process

Textbook (Required):
Bear, Connors, Paradiso (2016) Neuroscience: Exploring the Brain (4thed)

Recitations:
Recitation sections will meet every week in 104 Leidy unless otherwise noted. During the Recitation, your TA will provide a brief review of the material covered during the previous week's lectures, go over problem sets and quiz questions, and address any questions you may have. ****Please note that you are only to attend Recitation on the day/time for which you are registered. There are no exceptions to this rule.

Attendance at each Recitation session is **mandatory.** If you have a conflict with the recitation/lab due to curricular or extracurricular activities, personal obligations, or religious holidays please let your TA know as soon as possible to make arrangements to make up the recitation/lab. If you have to miss a recitation for missed for last minute excused absences, such as illness, please let your TA know AND submit a Course Absence Report.

You will complete three laboratory-based exercises during your recitations this semester:
Lab Exercise 1: Computer simulation of resting membrane potential
Lab Exercise 2 and 3: Sheep brain dissection (2 dates) + Lab Practicum.

Canvas
Lecture slides, lecture recordings, weekly quizzes, weekly problem sets, and all other course materials, and announcements will be posted on Canvas: https://canvas.upenn.edu/

Grading:
There will be 3 midterms and a cumulative final. Your **highest three** exam scores will contribute to your exam score for the semester. This means you can drop your lowest score! If you are content with your scores on the three midterms, you do not need to take the final.

Final semester grades will be based on the following:
Exam score	**75%**
Weekly Problem Sets	**10%**
Recitation Attendance	**5%**
Neuroanatomy Practicum	**5%**
Class Attendance Quizzes	**5%**

Exams:
A large part of your grade will be a product of your performance on four exams (three midterms and one cumulative final exam—you will be able to drop your lowest score). If you know in advance that you do not want to take the final exam, you do not need to attend. All exams will consist of multiple choice/fill-in-the-blank/matching and free- response questions. Students must use pen to be considered for a re-grade request.

If you miss an exam due to illness or other factors, this will be the exam that you drop. There will be no makeup mid-term exams unless there is an extenuating circumstance causing you to miss at least two exams or if there is conflict with a religious holiday or university sponsored event. In the case of possible religious holiday or university sponsored event conflict, please look at the dates for the exams *now*. If any exam conflicts with a religious holiday that you observe or an official university event, please let Professor. Rust know by e-mail by September 13, 2023. Notification after that date will constitute an unexpected event and will no longer be eligible for accommodation.

Weekly Problem Sets:
Many weeks a Problem Set consisting of several questions from the material covered in the weekly lectures will be posted to Canvas. Completion of these Problem Sets is required. Your grade on these will be determined by effort, not correctness. The Problem Sets will typically be posted on Canvas on Fridays and you must submit your completed Problem Set by Monday at 11:59 pm. You should attempt to answer each question using your notes, textbook, etc... These questions are representative of the type you will see on each exam. TAs will go over these Problem Sets during the weekly Recitation sessions. Late submissions will not be accepted for credit.

Attendance Quizzes:
We will be administering "Attendance Quizzes" during lectures. The quizzes will consist of 2-3 questions that cover material presented in lecture and will test your understanding of the material. The quizzes will not be graded for correctness, but you must complete the quiz to get credit for the day. You are allowed to miss quizzes from up to three class periods during the semester. After three absences, points will be deducted from your Attendance Grade for each missed class for which you do not also submit a Course Problem notice. There are no make-up or late Attendance Quizzes.

Re-grading:
You will have the opportunity to air your grievances with any exam question that you felt was unfair. You must submit your grievance to the head TA in writing to have your work re-evaluated, no more than one week after the work is returned in class. No re-grade requests will be considered beyond this date. Your request must explain the specific error or fallacy that you think was made. We will only regrade if an assignment was completed in pen. Please only submit a request if you genuinely believe that a question was unfair or an error has been made.

Lectures:
This course will be taught in a lecture-based format. Lecture slides will be posted in Canvas before the lecture. You are forewarned that slides are only part of the lecture and may not convey all information that was presented orally. Neither the posted slides nor the textbook provide an adequate substitute for attending class. Lectures will be recorded in Zoom and posted to the Canvas Site after class.

Readings:
We recommend that you read the assigned portions of the textbook prior to class. At certain points in the course, the lectures will coincide closely to the textbook, while at other points the lecture may diverge from the text. In the case of divergence, you should consider the lecture as primary material and the textbook as supporting material. In some cases, entire sections of material contained within textbook chapters will not be covered in lecture, and when that happens, these sections will not be included on quizzes or exams.

Review Sessions:
The TAs will run review sessions before each exam. Be sure to email them specific questions and/or topics to cover during the reviews.

How to get your questions answered:
There are several ways to get your questions about course content answered outside of the lectures: 1) Bring them to your weekly recitation, 2) Professor Rust's office hours on Wednesdays, 3) Post them to the Discussion Board on Canvas, 4) Attend the pre-exam review sessions. All electronic questions about course content should be posted to Canvas, as opposed to sent via email, so the entire class can benefit. If you have other types of questions (e.g. logistical or concerns), please reach out to your TA and/or email the head TA.

Office Hours/Email Policy:
Professor Rust will be in Goddard 427 during her office hours each week and you are always welcome to drop in at any time during that period – even if you don't arrive with questions yourself, listening to the questions of others and discussion around them can be helpful. If you have any questions or concerns about the structure of the course, please ask either her or your TA. Please only e-mail the instructor or TA if you have a question that can be answered in a few sentences or less. If you have a question that requires a longer response, please come to office hours. TAs do not have office hours but instead answer questions during recitations. We will do our best to respond to emails within 24 hours, although over the weekends and holidays it may be longer.

Academic Integrity:
Please note that Penn has strict rules on academic integrity (see: https://catalog.upenn.edu/pennbook/code-of-academic-integrity/). Any violation of the rules will be reported to the Office of Student Conduct and will likely result in automatic failure of the course.

Classroom Etiquette:
During lecture, electronic devices should be used only for course relevant purposes, not for sending instant messages, surfing the web, monitoring status updates on Facebook/Instagram, or any other purpose.

Course Absence Report:
The Course Absence Report (CAR) system has been designed to provide a consistent way for students to notify course instructors of short-term absences for one or more courses. It also provides a method for advising offices to track absences and coordinate support for students who miss classes. The submission of a CAR does not excuse you from your course obligations; students are still responsible for following up with each instructor directly and adhering to course policies and procedures as outlined in the course syllabus. All students enrolled in a class can submit a CAR during the current term: https://www.college.upenn.edu/course-absence-report

All notifications of class absences must be sent to the instructor through the CAR only. If you will be absent for more than five days as a result of a University-approved excuse, please contact a CaseNet advisor with the College Office, who will notify your instructors directly.

What to do if you are sick:

Exam:
1. Submit a Course Absence Report (CAR). Please also email the head TA. If this is your first missed exam, it will be the one you drop. If it is your second, we will work with you to arrive at a solution (which will most likely involve scheduling a make-up exam after you recover).

Lecture:
2. Submit a Course Absence Report (CAR) for the lectures you will miss
    a. You will be excused from the attendance quizzes you miss
3. Watch recorded lecture
    a. The lecture will be posted within a few hours of class

Recitation:
1. Submit a Course Absence Report (CAR) for the recitation you will miss
2. Email your TA to inform them of why you did/will miss recitation and ask for any materials you missed.
    a. You will be excused from the recitation you miss
    b. You will not need to make up the recitation you miss, unless it is a lab exercise and in that case, your TA will instruct you about how to proceed.

Tentative Schedule: (Exam dates are fixed; content is tentative)

Date	Topic	Chapter	Assignments
8/30/W	Course Introduction	-	Recitations canceled this week
9/4/M	No class: Labor Day	-	Recitations canceled this week
9/6/W	Neurons & Glia; History	1,2	Problem Set 1
9/11/M	Resting Membrane Potential	3	Recitation: LAB 1 (RMP).
9/13/W	Resting Membrane Potential, Action potential	3,4	Problem Set 2
9/18/M	Action potential	4	
9/20/W	Synaptic Transmission	5	Problem Set 3
9/25/M	Synaptic Transmission	5	Recitations canceled this week
9/27/W	**Exam 1**		(But + Exam Review session)
10/2/M	Neurotransmitter Systems	6	
10/4/W	Organization of the Nervous System	7	Problem Set 4
10/9/M	Olfaction	8	* Last day to drop
10/11/W	The Eye	9	Recitations canceled this week (Fall break)
10/16/M	Central Vision	10	Recitation: LAB 2 (Brain 1).
10/18/W	Central Vision > Audition	10,11	Problem Set 5
10/23/M	Audition	11	Recitation: LAB 3 (Brain 2).
10/25/W	Somatosensation	12	Problem Set 6
10/30/M	Spinal control of movement	14	Recitations canceled this week
11/1/W	**Exam 2**		(But + Exam Review session)
11/6/M	Spinal control of movement	13	LAB Practical Exam.
11/8/W	Brain control of movement	14	Problem Set 7
11/13/M	Attendance optional: Coaching on getting involved in research		Recitations canceled this week
11/15/W	No class: Society for Neuroscience meeting		(SFN)
11/20/M	Mental Illness	22	Recitations canceled this week
11/22/W	Mental Illness	22	(Thanksgiving)
11/27/M	Consciousness	18	
11/29/W	TBD	-	Problem Set 8
12/4/M	TBD		
12/6/W	TBD		
12/11/M	**Exam 3**		
12/14-21	**Final exam** (date TBD by registrar). On campus only.		