

NEU C64: Exploring the Brain: Introduction to Neuroscience

Summer 2026 | Tu/Th 10am-12pm | 100 Genetics & Plant Bio

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Teaching Staff

Instructor: Tara Raam, Ph.D., tararaam@berkeley.edu

GSI: Marley Lovemann-Brown, mbloveman@berkeley.edu

Course Information

Lectures	Tues/Thurs 10am – 12pm, 100 Genetics & Plant Bio
Discussion Sections	Friday 10am-12pm & 1pm-3pm
Final Exam	Thursday August 13 th , 10am – 12pm
Prerequisites	High school chemistry & biology
Course Website	tararaam.github.io/neu-c64
bCourses	https://bcourses.berkeley.edu/courses/1555229

Office Hours:

Staff	Date & Time	Location
Professor Raam	Mon. 9am-10am	virtual, link to be provided
Marley Lovemann-Brown, GSI	Wed. 11am-12pm	virtual, link to be provided

Important Dates:

Start of Instruction	June 23 rd
Last day to add or drop	July 2 nd
Last day to change grade options	July 31 st
Last day of class	August 13 th

Course Description

This course will introduce lower division undergraduates to the fundamentals of neuroscience. The first part of the course covers basic membrane properties, synapses, action potentials, chemical and electrical synaptic interactions, receptor potentials, and receptor proteins. The second part of the course covers networks in invertebrates, memory and learning behavior, modulation, vertebrate brain and spinal cord, retina, visual cortex architecture, hierarchy, development, and higher cortical centers.

Learning Goals

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

1. **Explain the building blocks of nervous system function**, from neurons and glia to action potentials and synaptic transmission.
2. **Describe how the brain transforms sensation into perception and experience**, from the chemical senses, vision, and hearing to emotion, sleep, language, and memory.
3. **Understand how neuroscientists think and ask questions about the brain**: what makes a question scientifically tractable, how experimental approaches are matched to specific questions, and what each method can and cannot tell us.
4. **Use AI thoughtfully as a learning tool**, developing stonger judgment for when AI deepens your understanding and when it will shortcut it.
5. **Communicate neuroscience concepts accessibly to a broad audience** through written reflections and group presentations.
6. **Connect neuroscience to everyday life**, relating course concepts to health, education, and society.

Materials

Required Textbook: Neuroscience: Exploring the Brain 5th Ed. Mark F. Bear, Barry W. Connors, Michael A. Paradiso. ISBN: 1284286878

This book is available at the campus bookstore, however you may also be able to find it from other sources. An E-Book is also available online (CalCentral log-in required) for a maximum of 3 users at a time at [this](#) link.

All course materials will be provided via the [course website](#). bCourses will be used for announcements, discussion boards, submitting assignments, and to view your grades.

Course Calendar

Week	Date	Topic	Reading	Take-Home Quizzes	Assignments	Group Project
1	6/23	Intro, History, Neuroanatomy	Ch 1 Ch 7: p194-203	Pre-course survey due Fri 11:59pm		
	6/25	Neurons & Glia	Ch 2			
2	6/30	Membrane Potential	Ch 3	Q1 due Sun 11:59pm	In-Class Reflection 1	Introduce Project + Form Groups
	7/2	Action Potential	Ch 4			
3	7/7	Synaptic Transmission, Neurotransmitters	Ch 5: p114-141 Ch 6: p154-173	Q2 due Sun 11:59pm	Homework 1 due 11:59pm	
	7/9	Probing the Brain + Review	p 86, 90, 203-209, 705-712, 840, 843-844			
4	7/14	MIDTERM	--	Q3 due Sun 11:59pm		Checkpoint 1 due Friday at 11:59pm
	7/16	Chemical Senses	Ch 8			
5	7/21	Vision	Ch 9-10	--		
	7/23	Hearing	Ch 11		In-Class Reflection 2	
6	7/28	Emotions	Ch 18	Q4 due Sun 11:59pm	Homework 2 due 11:59pm	Present in Section
	7/30	Sleep	Ch 19			
7	8/4	Language	Ch 20	Q5 due Sun 11:59pm		Present in Section
	8/6	Memory	Ch 24 Ch 25: p944-966		In-Class Reflection 3	
8	8/11	Topics of Interest + Review	--	Q6 due Sun 11:59pm	Homework 3 due 11:59pm	
	8/13	FINAL EXAM	--			

Assignments

- Homework Assignments: You will have 3 homework assignments in total, which will be focused on applying concepts you've learned in class. You will turn in your homework assignments on bCourses.
- In-class Written Reflections: We will have 3 in-class written reflections designed to help you think more deeply about the applications and implications of course topics. In-class assignments can only be made up with an excused absence.
- Weekly Take-Home Quizzes: There will be 6 take-home quizzes based on material from the readings and lectures. These will be completed and submitted via bCourses. As they are to be completed at home, they are open note and you can see them as low-stress ways to test your knowledge of course material.
- Exams: We will have two exams – a midterm in Week 4, and a final exam in Week 8. These will be multiple choice scantron exams. We will hold review sessions before each exam. Reflections can only be made up for excused absences.
- Group Project: The group project explores an aspect of neuroscience that is broadly relevant to society and teaches it in an accessible format to a non-scientist audience. More information will be provided in week 2.
- Discussion Section Participation: Discussion section attendance and participation are part of your grade, and you are strongly encouraged to attend. Supplemental readings will be provided to form the basis of class discussion. These readings will be read together during section – you do not need to read them ahead of time.

Grading

Category	Course Component	Points
Misc.	Pre-course Survey	1
	Course Evaluation	1
Assignments	In-class Reflections (3 total)	12
	Homework Assignments (3 total)	15
	Take-home Quizzes (6 total)	6
	Group Project	15
Exams	Midterm	20
	Final	25
Participation	Section Participation	10
	TOTAL:	105

Your final letter grade in this course will be based on a point accumulation system, rather than a percentage system. The total number of available points is 105, which means there are 5 buffer points built in. These exist to give you flexibility for an off week, an unexpected conflict, or simply an aspect of the course you want to engage with less than others. Nothing in this course is strictly mandatory; you have full agency over your learning and can choose how to invest your effort. I encourage you first and foremost to focus on expanding your thirst for knowledge, and enjoying the process of doing so, trusting that good grades will come.

Points Earned	Letter Grade
>97	A+
93-96	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
<59	F

PLEASE NOTE: Because the 5 point buffer is built in, I won't be offering extra credit, rounding borderline grades, or accepting make-up work for unexcused absences. Please don't email course staff with such requests. That's what the 5 points are for.

Policies & FAQ

Attendance Policy

We aim to make lecture as useful as possible by doing interactive exercises and activities in addition to lecture – hopefully you find it worthwhile to attend. While we won't be taking attendance during lecture, there will be 3 in-class written assignments that earn you points toward your grade. Make-ups for these assignments will not be offered unless you have a documented medical absence. Section attendance and participation is highly encouraged and earns you 10 points toward your grade.

Late Assignments Policy

Homework assignments and take-home quizzes may be submitted up to 5 days late, with a 10% deduction per late day (maximum deduction: 50%). Group project checkpoints and presentations must be submitted on time. Given the collaborative nature of projects, late submissions affect your group members, not just you.

What happens if I need to miss an exam?

If you know you need to miss an exam for a legitimate reason (illness, emergency, etc.), please contact Professor Raam ASAP to schedule a make-up exam. A documented excuse will be required. Make-up exams for unexcused absences will not be permitted.

What should I do if I need learning accommodations?

Please make sure to have your accommodations noted with the Disabled Students Program. If your accommodations enable you to take exams under specific conditions, please make sure to contact the DSP office one week in advance of each exam to ensure you will be able to take your exam in the DSP room. Contacting DSP on time is your responsibility, and course staff do not have control over DSP testing space if the deadline is missed.

What is the academic integrity policy for this course?

Academic dishonesty is forbidden and is reportable to the Center for Student Conduct. If you are struggling with course material, please reach out to me or the GSI so we can help you. Resorting to cheating is unfair to other students, will create bad habits in yourself, and leave you unprepared to tackle future challenges in school and in work.

The following are considered academic dishonesty: plagiarism, copying answers from someone else during an exam, talking to another student during an exam, using your phone or other technology during closed-book assessments, faking your or another student's attendance, copying AI-generated material and submitting it as your own work, altering answers on a graded assessment and then asking for a re-grade.

Assignments in which academic dishonesty are discovered will be recorded as a zero.

How do I provide feedback about this course?

This is the first time I'm teaching NEU C64. I've put a lot of thought into how it's designed, including the AI guided tools, the structure of assignments, and the grading approach. I would love to know what's working for you and what isn't. You can share feedback with me directly in office hours or by email. If you'd prefer to do so anonymously, you can use [this](#) feedback form at any point in the semester.

Can I Use AI to Help Me in This Course?

Yes, you are welcome (and encouraged!) to use AI to help you learn in this course. I use AI regularly in my own work, and I've spent considerable time thinking about how to use it well in the classroom. The interactive tools on the course website are a direct result of that. They're built to help you learn how to use AI as a learning partner.

That said, **there's an important difference between using AI to deepen your understanding and using it to avoid thinking altogether.** The first will make you a stronger learner. The second will leave you unprepared, not just for this course, but for the kind of independent thinking that education, work, and life require. AI tools are also imperfect: they hallucinate, they oversimplify, and they reflect the biases of their training data. Treating their output as truth without verifying their output is a habit worth breaking early.

Throughout the course I'll share specific examples of how I use AI to clarify ideas, stress-test my thinking, and get feedback on my writing. I encourage you to experiment in the same spirit. **What's not permitted is submitting AI-generated text as your own work. This is easy to spot, and more importantly, it's a waste of the learning opportunity you have in front of you.**

If you're ever overwhelmed and tempted to lean on AI just to get something submitted, please reach out instead. I'd much rather help you figure out a path forward.