INTRO NEUROSCIENCE

Class Times: MWRF 11:00-11:55am in *Pettengill G21* | **Office Hours:** M 3:10-4:10pm/R 4:30-5:30pm/by appt.

Instructor

Dr. Justin Hulbert
pronouns: he/his/him
office: Carnegie Science 530
e-mail: jhulbert@bates.edu

Course Materials

Hedges (2022). *Introduction to Neuroscience* (free, OEM): openbooks.lib.msu.edu/introneuroscience1

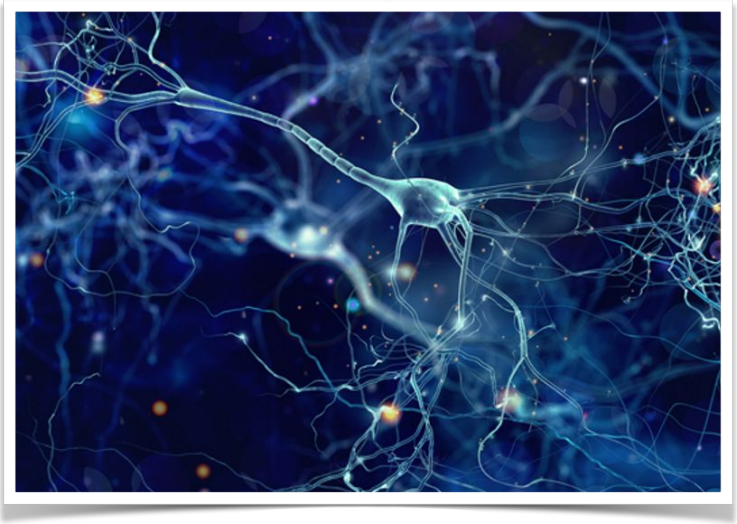
Additional materials will be posted on **Lyceum**.

Prerequisite(s)

Not open to students who have received credit for PSYC 215.

Assessments

- Quizzes: **50%** (5*x10%)
  **lowest of 6 scores dropped*
- Neuro Explainers: **24%** (3x 8%)
- Final Reflection: **10%**
- Class Engagement: **10%**
- Research Participation: **6%**
- Extra Credit: **up to 4 extra percentage points**

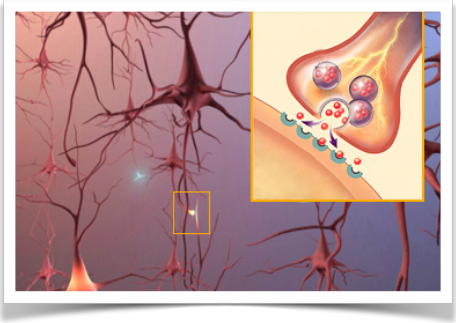


Course Overview

In this course, we will examine how the structure and function of the central and peripheral nervous systems give rise to mind and behavior. We will begin by identifying major neuroanatomical landmarks before exploring the core principles of neural communication to understand how these circuits underpin mental processes and behavior. Building on this foundation, we will survey the sensory and motor systems that mediate our interactions with the world, considering both typical functions and the consequences of impairment. Along the way, we will investigate how organisms learn, adapt, and regulate their internal states, including how pharmacological agents can modify neural activity. Designed for both prospective majors and non-majors, this course offers an interdisciplinary perspective on a field in which biology and psychology intersect, enriched by insights from chemistry, philosophy, anthropology, and computer science.

Joint Responsibilities

Achieving the broad aims of this course requires commitments



Learning Objectives

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

- Explain how neurons and neural circuits communicate and produce behavior.
- Use neuroanatomy to connect brain systems to function and to predict effects of damage, disease, drugs, or stimulation.
- Interpret evidence by reading basic neuroscience figures/studies and judging what conclusions are warranted.
- Communicate clearly about neuroscience in writing and discussion for different audiences.
- Evaluate implications by analyzing ethical and societal impacts of neuroscience, including how power and race can shape research and its uses.

from all of us. Below you will find an outline of some of those responsibilities. Did I leave something out? Let me know—we can discuss additional responsibilities/group norms as a class.

- **Your instructor agrees to…**
    a) Make himself available outside of class during posted office hours (and by appointment, as necessary) to answer questions, provide extra help, and discuss matters related to the course of study.
    b) Respond in a timely fashion to email queries. I encourage you to email me with questions, as this is often easier and faster than arranging a meeting. However, I aim to set healthy work-life boundaries, and I do not check email at home. Instead, I check email primarily once per day, usually around 5 or 6pm. This helps me give more focused attention to your messages (instead of fragmented replies throughout the day) and also models good practices for managing time and focus. You generally can expect a response within one business day, and often sooner if your message arrives before my daily email block. Messages sent in the evening or on weekends will be answered the next school day. Don't wait until the last moment (e.g., right before a quiz/deadline) to contact me. For questions that require more detailed discussion, I may suggest we meet in person during office hours.
    c) Facilitate a thoughtful, considerate, and engaging learning environment.
    d) Make available on Lyceum a skeleton of lecture slides, suitable for downloading/printing prior to class. Note that these skeletons are intended to supplement note-taking (e.g., by providing important/complicated figures) but are not a replacement for attending class. Classroom technology and circumstances permitting, a recording of the class will be posted to Lyceum's Kaltura Media Gallery within 24 hours of each lecture for the benefit of students who were ill or

Best Practices

You are encouraged to:

- Let me know if I can clarify a concept or slow down.
- Ask questions during class so that everyone benefits.
- Complete assignments on time.
- Study to understand, not simply to memorize.
- Attend office hours.

To make the most of office hours, it is recommended that you:

- Avoid waiting until the last minute (e.g., before an exam/due date) to attend. Seeking help well in advance of deadlines will leave you plenty of time to act on advice discussed.
- Email the instructor in advance or bring with you a concise list of topics/questions you wish to discuss, if possible. Itemizing in this way helps ensure all your questions are addressed and saves you time in the long run. That said, *dropping by for a spontaneous, broader chat is also most welcome*.

otherwise unable to attend class due to extenuating circumstances. These recordings may also be used to review material covered in class.

e) Provide adequate time to complete assignments, minimize changes to the published schedule/assignments, and immediately notify students about any such changes.

f) Provide study/review guides in advance of each graded quiz to help direct studying.

g) Provide comprehensive and fair assessments of materials presented or assigned. Assignments, with a level of feedback commensurate with the nature and aims of the task, will be returned to students in a timely fashion.

h) Create and welcome opportunities for students to provide feedback on the course/teaching throughout the semester.

- **You are responsible for…**

a) Showing up to class regularly, on time, and prepared, as detailed in the below Attendance policy.

b) Checking your **Bates email** and **Lyceum** regularly for important announcements about the course, including alterations due to weather emergencies and other Unforeseen Events.

c) Giving your participation, readings, and assignments the time and effort they deserve. There is no substitute for a deep and focused consideration of the material, spaced out over time and considered actively.

d) Substantively participating in class discussions and other relevant activities. This could, for instance, involve asking/answering questions related to the offered course materials. Note that a top-notch level of participation does not necessitate responding to every question raised in class or online; active or passive efforts to welcome contributions from everyone in the class are also looked upon favorably.

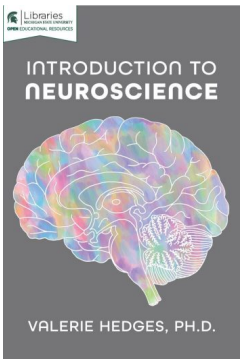
Though you are welcome to challenge your fellow students' or your instructor's thoughts and conclusions, please do so in a fashion that is respectful. Challenge ideas, not the person raising them. More information can be found in the Diversity and Inclusion section, below.

e) Submitting assignments on time, digitally via Lyceum. Extensions may be granted for extenuating personal circumstances or illness. Please reach out as soon as you think you may need an extension so we can work out an arrangement. Otherwise, any late assignment will immediately be subject to a 10% penalty, with an additional 10% penalty leveled against that assignment's score for every 24 hours it remains late. *No late work will be accepted after 11:59pm on the day final examinations end for the semester (according to the published academic calendar)*. Make-up quizzes/exams for events explicitly described by Student Affairs (https://www.bates.edu/accessible-education-student-support/makeup-exam-requests/) will be given only when the student provides documentation substantiating the absence for the *precise day* of the quiz/exam (not the days leading up to it). Make-up quizzes/exams may be in the form of short essay, long essay, and/or oral defense, at the instructor's discretion. Information for students requiring alternative testing or other accommodations (e.g., due to disability) can be found under the Accessibility subheading, below.

f) Using electronic devices wisely and respectfully. See section on In-Class Electronic Device Policy, below.

g) Upholding academic integrity. See the sections on Academic Integrity and Use of Artificial Intelligence (AI), below.

Textbook



- There are a number of high-quality textbooks on the market that would be suitable for a course like this. But the cost of such textbooks published for profit tend to be astronomical these days, especially in a rapidly changing field like neuroscience. So we'll be using an Open Educational Resource (OER) textbook for our course this semester. OERs are freely available, high-quality learning materials that are openly licensed, meaning they can be accessed, shared, and adapted without cost to students. By using an OER, we dramatically reduce financial barriers to accessing the textbook, ensuring that everyone starts the course on equal footing. Beyond affordability, OERs are often updated more frequently than traditional textbooks, allowing them to incorporate the latest research and insights. My hope is that this resource supports your success in the course while also demonstrating the value of accessible and equitable education.
- Our textbook, compiled by Prof. Valerie Hedges of Michigan State University, is thoughtfully designed to make neuroscience approachable and engaging for introductory learners. It breaks down complex topics into digestible sections, paired with clear visuals, helpful videos, and interactive review activities. Whether you prefer to read online (select the "READ BOOK" button) or download the digital PDF (with links to the interactive features), you can access the material here: https://openbooks.lib.msu.edu/introneuroscience1/. *Plan to devote roughly 2-5 hours to reading each week*, though that estimate will vary based on the topic/comfort with the material.
    - Should you encounter a section of the textbook that feels unclear, or if you're simply curious about additional depth or applications, the "Additional Resources" section later in the syllabus offers free supplemental materials to support your learning journey.
        - In particular, I also recommend an optional, open-access supplementary text by Hutchins (https://uen.pressbooks.pub/introneuro/) that includes exceptionally clear, high-quality figures—better than many of the figures in our assigned textbook. For that reason, you may see some of its figures "sneak" into our lecture slides. That said, the assigned textbook's focus and level of detail best match our course goals, so it remains your primary reading. If you're coming from (or aiming for) a more biologically intensive perspective, this supplementary text can be a great way to deepen your understanding. Unless I say otherwise, quizzes will be based on material from class, activities (in-class and homework), and the assigned textbook—not the supplementary text.
- Because we only have 55-minute class meetings over 12 weeks of the semester, the textbook is not optional "extra"—it's how you build depth and stability. For each assigned reading, start before class with a curious, big-picture mindset: your goal is not mastery, but to get oriented to the main questions, notice what feels confusing, and come in with a few things you want clarified. Then, after class, return to the reading for that day to solidify what we covered and fill in

any gaps. In most cases, you should prioritize the material from lecture, discussion, activities, and homework, and use that as a guide for which parts of the text to focus on. Similarly, quizzes will primarily emphasize material that was covered in class or explicitly highlighted on the study guide; *if something appeared only in the textbook and was never connected to lecture/ discussion/activities/homework or the study guide, it is highly unlikely to show up on a quiz*. This does not mean the textbook is unimportant! Reading is how you develop understanding beyond what we can do in class, and it will make the lecture material stick—but it does mean *you should not feel like you need to memorize every detail on every page*. That said, if a particular topic grabs you, you're encouraged to go deeper than what's required; in fact, you should use your own learning goals (in addition to the course learning objectives) to guide how you engage with the readings, classes, and assignments so you get the most out of the course.

Assessments

- **Quizzes** (*worth a total of 50% of your final grade based on five equally weighted quiz scores*) are a relatively low-stakes way to assess and reinforce your understanding of course materials from both class sessions and assigned readings. Research shows that frequent quizzing is one of the most effective ways to enhance learning. There will actually be *six* graded quizzes during the semester (in addition to one ungraded take-home practice quiz), but only your *highest five scores* will count toward your final grade (i.e., I'll drop your lowest of six quiz scores). Quizzes will primarily be multiple choice, but may also include matching and/or fill-in questions designed to test both foundational knowledge, critical thinking, and application of concepts.
    - ***Timing:*** The first five graded quizzes will be administered during class time. The final quiz (Quiz #6) will take place during the *first 55 minutes* of your scheduled final exam period (i.e., not the full two-hour block the Registrar sets aside for final exams). Unlike the first five, the *final quiz will be cumulative*, covering material from the entire semester. If you are satisfied with your previous five quiz grades, however, then you can skip the final quiz, which will receive a zero but be dropped. The choice is yours.
    - ***Coverage:*** Quizzes are designed to assess understanding of the ideas we emphasize—the key concepts, mechanisms, vocabulary, and figures we work with in lecture, discussion, activities, and homework. Assigned readings are essential because they add depth, context, and details that help that core material "stick." In practice, you should not worry about being quizzed on a tiny, isolated detail that appears only in the textbook and is never connected to anything else we do. The main exceptions are items I explicitly flag as important (e.g., on the study guide, in a slide note, or in an assignment prompt). If the study guide points you to a topic/section in the reading—even if we didn't

cover it directly in class—it is fair game. A good study strategy here is to use class as your roadmap: (1) Before class, do the reading with a curious, "big picture" mindset—aim to understand the main questions, core vocabulary, and the basic logic of the topic. (2) After class, return to the reading more selectively to fill in gaps, solidify details, and make sure you can explain the main ideas clearly (especially any concepts/figures we focused on during lecture or activities). If a reading feels dense, don't get stuck trying to understand every line on the first pass—focus on structure (headings, figures, summaries), flag questions/confusions, and then use lecture + office hours + the "Additional Resources" listed later in the syllabus to help you make sense of it.

- If you're short on time: Prioritize anything emphasized in lecture/discussion, then use the reading to (a) define terms precisely, (b) interpret key figures, and (c) connect mechanisms to real examples.
- If you're unsure what matters most: Use the posted study guidance (and your own flagged questions) to decide what parts of the reading deserve a second pass.

- ***Open Notes Policy:*** For each quiz, you may bring *one 8.5x11" sheet of notes (double-sided)*. You can handwrite/type/draw on this sheet whatever you think would help you most on the quiz. (Pro tip: Actively consolidating and organizing your notes before each quiz both improves your notes as a resource and itself serves as an effective study strategy.) Unless you have specific accommodations, digital resources and textbooks are not permitted. If your academic accommodation allows digital resources, please email me to arrange to take the quizzes in the testing center.
- ***Accessibility:*** Students with testing accommodations should schedule quizzes with the Office of Accessible Education *at least three business days* in advance of the quiz.

- **Neuro Explainers** *(worth a total of 24% of your final course grade based on three equally weighted assignments)* are designed to help you practice a core neuroscience skill (making sense of data/figures and communicating what they mean) while connecting course concepts to questions you genuinely care about. Specifically, you'll be asked to find an empirical article, interpret a key figure (or creating a simple graph in the case of Neuro Explainer #3), and clearly explaining what the data mean. Each Neuro Explainer should take ~2–4 hours from start to finish.
  - The three Neuro Explainers:
    - Neuro Explainer #1: Mechanism Minute
      Choose a mechanism that connects to our early foundations (neurons, synapses, neurotransmitters, action potentials, etc.). Your reflection must include one specific "real-world" hook (connecting the finding to daily life, medicine, mental health, behavior, or technology).
    - Neuro Explainer #2: Sensory Systems Figure Walkthrough
      Choose a figure tied to one sensory system we cover (vision, audition/vestibular,

chemical senses, somatosensation/pain). Your figure must include data (not only an anatomy diagram). Your reflection must connect to a specific concept or example from class.

- Neuro Explainer #3: Create an Original Graph
  For this Neuro Explainer, you will create one original graph that helps explain a result relevant to your topic, and you will briefly interpret what the graph shows. "Original" means you generate the figure yourself in a graphing tool (you choose the axes/variables and create the plot); it does not mean you must collect raw data. You may base your graph on values reported in the paper (e.g., means/SDs, proportions, accuracy rates, symptom scores, etc.), values shown in a table, or values you approximate from a published figure (a close estimate is fine, and you may use a digitizing tool such as WebPlotDigitizer if you want). Using an author-provided dataset from a supplement or repository is also allowed but entirely optional. Your graph should faithfully represent the underlying result, but it does not need to match the paper's formatting or reproduce the numbers perfectly—accuracy of the pattern and clarity of communication matter most. You may use any reasonable tool to generate the graph (Excel/Google Sheets are perfectly fine; GraphPad, R, Python, MATLAB, etc. are also fine). Your submission must include the graph with clear labeling (title/caption, labeled axes with units where relevant, and clear condition/group labels, a brief interpretation (roughly a short paragraph) explaining the main takeaway and what comparison/pattern matters most, and a short note stating where your numbers came from (e.g., "values taken from Table 2" or "values estimated from Figure 3"). Error bars are optional, but if you do include them, be sure to specify what they represent (e.g., standard error of the mean or confidence intervals). This assignment is not a test of advanced statistics or perfect figure recreation; it is primarily about making a clean, accurate, readable graph and explaining what it means.

- For each of the three Neuro Explainers, submit the following on Lyceum:
  - A 2-3 minute ***Video*** (webcam/screencapture is fine). The goal is to teach someone (imagine a classmate who hasn't read the associated paper) one figure/panel/result. Aim for clarity; fancy editing not required. For this video, you should clearly answer the following questions in your own words:
    - What question was the figure testing? (What were the authors trying to find out?)
    - What are the conditions/groups and the main measure(s)? What's being compared?
    - What is the main result?

        - What is the best interpretation AND one limitation/confound? Show you can think like a scientist, not just summarize.
- One ***Figure Card*** slide uploaded as a PDF (don't simply share a Google Slide link; convert it to PDF and upload that to Lyceum) that includes:
    - The figure (or a single panel) you're discussing (with citation)
    - 2–4 brief callouts/labels/arrows to point to the one or two parts of the figure that support your claim. Each callout should tell the reader what to notice (not label everything).
        - Good callouts might look like little speech bubbles over the figure with labels like:
            - "Drug > placebo here" / "Lesion vs. sham difference"
            - "Peak shifts right" / "Signal increases after stimulation"
            - "Effect only at high dose" / "Left visual field impairment"
    - A one-sentence "main takeaway." Compared to what, what changed, and in what measure?
        - Examples:
            - "Compared to placebo, ketamine increased PFC activity within 30 minutes."
            - "High-frequency stimulation increased CA1 EPSP slope, consistent with LTP."
- A ***Search Trail Receipt*** showing you actually did a literature search, including:
    - A screenshot of your Google Scholar/library database search results
    - The search terms you used (can be typed on the slide or in a short note)
- A ***Micro-Reflection*** (≤150 words; be concrete; generic reflections won't earn full credit) that makes a specific connection to at least one of the following:
    - Something from our class (a lecture concept, demo, discussion day, activity, etc.)
    - Your own interests, experiences, or goals (premed, psych, bio, public health, computation, etc.)
- An ***AI Use Statement*** that addresses:
    - Generative AI tool(s) used (if any)
    - Exactly what you used it for (e.g., brainstorming topic ideas; generating search terms; helping refine a question; checking grammar of the micro-reflection)
        - AI tools can be helpful for brainstorming, refining questions, finding search terms, and polishing the micro-reflection (within our Use of Artificial Intelligence (AI) policy, below). They may *not* be used to write your narration/script, generate the substantive

explanation you submit, or replace your own interpretation of the figure/graph. The point here is that you are practicing how to reason from evidence. So, your process needs to be transparent and your final explanation needs to be yours.

- What you did with the output (e.g., "used suggested keywords to search Google Scholar; did not copy any phrasing into my submission")
- If you did not use AI tools: write "AI Use Statement: No AI tools used."

- Upload a PDF of the complete ***Empirical Article*** you used as your primary source (not just the figure).

- Source requirements for the Neuro Explainers:
  - You must use at least one *peer-reviewed empirical research article* per Explainer (your textbook does *not* count).
    - By an empirical article, I mean one that reports original data collected by the authors (e.g., an experiment or observational study) and includes sections like Methods and Results—not a review, theoretical, meta-analysis, or perspective article.
    - Each Neuro Explainer must use a *different* primary empirical article (you may still cite a previously used article as background, but it cannot be the primary source again).
  - You may use additional sources, but your Explainer needs to be anchored in the empirical paper you chose.
  - You must provide a full citation (any consistent citation style is fine; my default is APA style, 7th Edition, with help found in the Additional Resources section, below).
  - Your empirical source can be on a topic of your choosing but must be squarely within neuroscience or a closely related field (e.g., biopsychology, neuropharmacology, cognitive neuroscience, neurology). A good rule of thumb: the paper should include a central nervous-system mechanism, measure, or brain–behavior link, not just a passing mention of the brain. In practice, your paper should feature at least one of the following:
    - A neural mechanism (neurons/synapses, neurotransmitters/receptors, plasticity, circuits, brain regions)
    - A neuroscience method/measure (EEG/ERP, fMRI/PET, single-unit/patch clamp, optogenetics/calcium imaging, lesions, TMS/tDCS, neuropathology, neurogenetics)
    - A brain–behavior question where the neural piece is central (not purely behavioral with no neural angle)

        - Even though a good figure is fairly self-contained, you will almost always need to read the surrounding parts of the paper (at minimum the abstract, the methods for that experiment, and the results text that describes the figure) to correctly explain what the figure is testing, what the conditions mean, and what a reasonable interpretation is. In other words: the figure is your anchor, but the paper is what tells you what you're actually looking at and why it matters.
    - Your Neuro Explainers will be graded on the following criteria:
        - Scientific accuracy & clarity of the main takeaway (did you get the neuroscience right?)
        - Figure/graph interpretation (axes/conditions; what the data actually show)
        - Evidence & sourcing (empirical paper chosen appropriately; citation + search trail included)
        - Critical thinking (reasonable interpretation + a limitation/confound)
        - Communication & constraints (time limit, 1-slide limit, reflection limit; submission complete)
        - AI Use Statement included and specific (even if you did not use AI)
- **Final Reflection** *(10% of your final course grade)* provides a thoughtful reflection of what you learned in this course, including why you feel you did/did not meet the learning objectives established by the instructor and for yourself. Your reflection should be organized, go beyond simply parroting back course material verbatim, and include how some of the big lessons from this course could be applied to your education, personal life, and/or career going forward. While your submission should be a polished product, having been fine-turned through careful editing, you are welcome to adopt a format that reflects your own preferred style. You could, of course, format this as a standard written term paper, but you could instead produce a video, animation, comic book, podcast, website, or interpretive dance… OK, it might be hard to fulfill the requirements of this assignment through purely interpretive dance. But you do have pretty wide latitude here. If you're unsure as to whether your plan is appropriate, check with me. To give you a general guideline, your submission should be roughly equivalent to a 3-page (double-spaced, 11-or 12-point font) paper with reasonable margins. It is OK to submit a link to your reflection (if, e.g., you posted a video to Youtube or created a website); however, you should not continue to edit the material after the deadline (at least until I've had a chance to grade it).
- **Class Engagement** (*10% of your final grade*) is critical for the success of this course. This course relies heavily on active engagement to foster a collaborative and dynamic learning environment. Neuroscience is best learned through asking questions, proposing ideas, participating in discussions, and actively engaging in group activities. Your engagement grade reflects not just how often you contribute, but also the thoughtfulness of your contributions, your willingness to listen to and build on others' ideas, and your preparedness for class discussions and activities.

- Class engagement will be assessed based on your participation in M/W/F class sessions and homework (including associated discussions, activities, Mentimeter polls, and handouts for those sessions), as well as your involvement in Discussion Day activities. While regular attendance is a baseline expectation, active participation goes beyond just showing up and being prepared—it's about being present in the conversation and contributing meaningfully to the class community.
- By participating actively, you'll not only enhance your own understanding but also contribute to a more engaging and supportive classroom environment for everyone.
- If you (1) attend regularly, (2) do the in-class work (Mentimeter, activities), (3) generally turn in completion-based items (exit tickets/homework) on time, and (4) participate constructively (even if you're not talkative), you should expect a high engagement score. Points are typically deducted for patterns like:
    - Frequent unexplained absences or late arrivals
    - Regularly missing completion-based items (exit tickets/homework/in-class submissions)
    - Consistently taking a back seat in group work/discussions (without contributing in other ways)
    - Submissions that repeatedly show only minimal/superficial effort

- **Research Participation** (*6% of your final grade*) is a valuable way to get first-hand exposure to the variety of research conducted within the Psychology and Neuroscience programs. There will be a number of student and faculty research projects recruiting participants this semester. You are expected to be involved in the equivalent of *2 credits* worth of participation or do an alternative assignment. Additional participation credits will be considered for Extra Credit (see below). A brief video overview of the participation credit system can be found at https://youtu.be/foLi2deanR8. Importantly:
    - You only get credit for participating in approved studies. All eligible studies are listed on https://www.bates.edu/psychology/participate-in-research/student-participation/. Participation in any experiment that is not included in that list of approved experiments will *not* count for credit.
    - It will take some time for research studies to be posted as students finalize their thesis experiments, so do not worry if you don't see any experiments posted right away. Keep checking the website every week or so, and things will pick up around mid-semester.
    - Each study has a fixed number of units assigned to it based on the average length of time that it will take to participate. Typically, 1 hour worth of participation is equal to 1 credit, with each quarter hour represented by 0.25 credits. Be sure to check the number of credits when you sign up for the experiment. If an experiment is worth 0.5 credits, for instance, you will get 0.5 credits whether it takes you 25 minutes or 35 minutes to complete it.

- Please note the restrictions listed for each experiment and do not participate in projects for which you are not eligible.
- To sign up for an experiment, please follow the link to the online appointment scheduler for that project. Please be respectful of the experimenter's time and make sure that you *keep your appointment and arrive punctually.* If you are unable to keep your appointment, please notify the experimenter as soon as possible.
- Please note that, for online studies in which your participation is entirely Internet-based, you will be given the experiment number and a code word for that study at the end of the survey. You will then be asked to enter that information in another web form in order to get credit for the project (the separation is meant to maintain the confidentiality of your data). If you don't enter the correct experiment number and code word, you will not receive credit.
- If you would prefer to opt out of this research participation requirement (or if you're not eligible for any available studies), you may instead complete alternative assignments designed to familiarize you with the other side of research participation: running a study involving human participants. Specifically, you would be asked to summarize chapters from Ritter et al.'s (2012) "How to Run Experiments: A Practical Guide to Research with Human Participants." Each reasonable summary would yield the equivalent of 1 participation credit (i.e., you'd need to submit two solid summaries to earn 2 credits, participate in 2 credits worth of eligible research, or complete a combination of the two—note that no partial credit will be given for summaries). The goal is not to rewrite what has already been written; instead, you will be asked to summarize the chapter in another modality: *as a slideshow, as a video, or as a podcast*. Get creative—for instance, you could act out or sing a song about the dos and don'ts around interacting with participants. Further details for the "Research Participation Alternative Assignments" can be found under the "General" section at the top of our Lyceum page.
- For credit, you must have completed your research participation and/or alternative assignment(s) by the last day classes are held for the semester—but don't wait until the last minute!

- **Extra Credit** *(up to 4 additional percentage points added to your final course grade)* Additional research participation credits (or alternative assignments) above the required 2 credits worth will be considered extra credit counted toward your final course grade (up to a maximum of 4 additional percentage points, 1 for each additional credit equivalent; e.g., an 88% becomes up to 92%). While research participation will be accepted in increments of .25 credits, there is no partial credit for the alternative assignments; each satisfactory summary earns the equivalent of 1 credit (so don't try turning in half a summary and expect .5 credits ;-).

Grading Scale

A+	≥97%
A	93-96.99%
A-	90-92.99%
B+	87-89.99%
B	83-86.99%
B-	80-82.99%
C+	77-79.99%
C	73-76.99%
C-	70-72.99%
D+	67-69.99%
D	63-66.99%
D-	60-62.99%
F	<60%

You can easily calculate your current grade by inserting the assignments/exams, grades received, and weights (given above, in percentages) by hand or using this handy calculator: https://www.rapidtables.com/calc/grade/grade-calculator.html. Note that any extra credit should be added on *after* that calculation is performed.

Attendance

Your attendance and preparation are critical to your learning and, in turn, your grade in the course. As such, you are expected to attend each class having completed the assigned reading for the day. The more active your reading (by thinking deeply about the issues raised, connections to broader themes and examples, and identifying/answering questions arising) and engagement during class, the more you will be able to gain. So, even if I don't take formal attendance, it is to your advantage to be fully present and prepared in class on a regular basis.

Of course, I recognize that illness, serious family emergency, or other extenuating circumstances may sometimes keep you from attending class. Under normal circumstances (and classroom technology permitting), lecture recordings will be provided online within 24 hours of each lecture for anyone who may have missed class for these reasons (or if you simply want to review the recording later, in combination with the lecture slides that will be posted to Lyceum). To access the recordings, click the "<" at the top-right corner of your Lyceum screen, click on the Kaltura Media Gallery link, and then select the lecture you would like to view. Be advised, however, that the recordings and slides do not capture the full in-class experience and should *not* be used as a substitute for attendance unless absolutely necessary. Recordings are for enrolled students only and may not be shared or reposted.

If you are going to miss more than one class in a row, please provide me with official notification from the Health Services, Counseling and Psychological Services, or the Office of Student Support and Community

Standards. Again, you remain responsible for working with me to address missed work under these circumstances. For additional information on the Bates College policy regarding course attendance and student responsibilities in cases of expected and unexpected absence, please consult https://www.bates.edu/dof/course-attendance-policy-guideline-for-absences/.

All Bates students are expected to take the final examinations (or, in our case, final quizzes) at the time scheduled by the Registrar's office. Exceptions are made for students who have two exams at the same time or three exams in one day. Final examinations cannot be rescheduled to accommodate the travel plans of students. Students should not make any travel plans until they have full knowledge of their final examination schedule. For more information or to submit a request to move a final examination, please visit the college's policy on final exams (https://www.bates.edu/accessible-education-student-support/request-to-move-a-final-examination/).

Religious Holiday Observance

Bates recognizes the right of students to fulfill their religious obligations and practices. In recognition of Bates' commitment to a diverse and inclusive student body and the variety of religions observed and practiced by our students, I have consulted the Multifaith Calendars posted online by the Office of the Multifaith Chaplain when developing this syllabus so that conflicts between in class examinations and major religious holidays may be avoided. Given the range of faiths embraced by members of our community, however, it may not be possible to avoid all conflicts between scheduled examinations and religious holidays. *Please let me know within the first three weeks of the semester if there is a conflict between a scheduled examination, paper, or project due date and a significant religious holiday you observe*. The Office of Accessible Education will continue to be available to proctor makeup exams for students who miss an exam due to observance of a significant religious holiday.

Unforeseen Events

Should an unforeseen event (e.g., a weather emergency) force us to cancel class or alter the venue, I will inform you via the class email list as soon as possible. Please check your Bates email regularly, as important class-related communications will come through this channel.

Accessibility

Bates College is committed to creating a learning environment that meets the needs of its diverse student body. If you anticipate or experience any barriers to learning in this course, please feel welcome to discuss your concerns with me.

If you have a disability, or think you may have a disability, you may also want to meet with the Director of Accessible Education, to begin this conversation or request an official accommodation. You can find more

information about the Office of Accessible Education and Student Support (AESS), including contact information, here: https://www.bates.edu/accessible-education/. Note that processing time for new accommodation requests is generally 2 weeks according to the AESS website. And, once approved, some types of accommodations may take several weeks to fulfill, so it is important to make the request as soon as possible. Once approved through the Office of Accessible Education, AESS will email me an official Letter of Accommodations (copying you). Although accommodations may be approved at any point in the semester, they are *not* retroactive.

Diversity and Inclusion

It is essential that our classroom be a place in which people feel comfortable expressing their thoughts, feelings, and opinions without fear of unduly critical or judgmental responses. Everyone in the classroom (students and instructors, alike) are expected to be respectful of the widely varied experiences and backgrounds represented by the classroom members as a group. Disrespect or discrimination on any basis will not be tolerated. Whether inside or outside the classroom, if you encounter sexual harassment, sexual violence, or discrimination based on race, color, religion, age, national origin, ancestry, sex, sexual orientation, gender identity/expression, or disability, you are encouraged to report it to Gwen Lexow, Director of Title IX and Civil Rights Compliance at Bates, at glexow@bates.edu or 207- 786-6445. Additionally, please remember that Bates faculty are concerned about your well-being and development, and we are available to discuss any concerns you have. Students should be aware that faculty are legally obligated to share disclosures of sexual violence, sexual harassment, relationship violence, and stalking with the college's Title IX Officer to help ensure that your safety and welfare are being addressed.

In-Class Electronic Device Policy

Although there are many benefits to taking handwritten notes and potential distractions associated with the use of devices like laptops, tablets, and phones in class (e.g., Mueller & Oppenheimer, 2014; Fried, 2008), you may still opt to use a laptop or tablet in this class *as long as it contributes to learning*. If it is seen to invite distraction to you or others, however, you may be asked to refrain from using it in class. There will be some class sessions where we will use technology together, and in those instances, all students should make arrangements to bring a laptop or tablet to class (smartphones may not be suitable for some of these in-class activities). If you do not have access to such a device or have any questions or concerns, please email me so that we may find a suitable workaround. For example, the library has several Chromebooks available to check out to Bates students for 1-week loan (with a 1-week renewal). And students who don't own a laptop have the option of checking out a long-term loaner (either laptop or Chromebook) from the IT Service Desk.

Academic Integrity

Academic integrity isn't just a policy—it's about building trust and fairness in our learning community. All members of the Bates community benefit from an environment of trust, honesty, fairness, respect, and responsibility. You are expected to present your own work and acknowledge the work of others in order to preserve the integrity of scholarship. Your academic work is governed by The Bates College Statement on Academic Integrity (https://www.bates.edu/student-conduct-community-standards/student-conduct/academic-integrity-policy/) and by any additional standards I set in this syllabus or in individual assignments.

Academic integrity includes:

- Following quiz/exam/assignment rules
- Using only permitted materials during an quiz/exam/assignment
- Viewing quiz/exam materials only when permitted by your instructor
- Keeping what you know about a quiz/exam to yourself
- Incorporating proper citation of all sources of information
- Submitting your own original work
- Not submitting work produced for another course—even if it is entirely your own—without prior, explicit permission from the instructor

Academic misconduct includes, but is not limited to, the following:

- Disclosing quiz/exam content during or after you have taken an quiz/exam
- Accessing quiz/exam materials without permission
- Copying/purchasing any material from another student, or from another source including generative Artificial Intelligence, that is submitted for grading as your own
- Plagiarism, including use of Internet material without proper citation
- Using cell phones or other electronics to obtain outside information during a quiz/exam or assignment without explicit permission from the instructor
- Submitting your own work in one class that was completed for another class (self-plagiarism) without prior permission from the instructor

Violations of academic integrity are serious and can result in severe consequences at both the course and College levels. Depending on the circumstances of the violation, I will assign a failing grade for the assignment and/or the course, require work to be redone, and/or impose other consequences; in addition, I will refer the matter to the Dean of Students for possible institutional action. The Bates College Statement on Academic Integrity and procedures for suspected violations can be found here: http://www.bates.edu/student-affairs/student-conduct/academic-integrity-policy/.

Use of Artificial Intelligence (AI)

Generative artificial intelligence (AI) tools (e.g., ChatGPT, Copilot, Claude) can be powerful aids for brainstorming, fact-checking, and learning. However, AI must be used thoughtfully and responsibly in this course. You are expected to:

- Use AI as a learning partner, not a shortcut: AI can help clarify concepts or spark ideas, but it should not replace your own critical thinking, writing, or data analysis.
- Maintain academic integrity: Submitting AI-generated work as if it were your own original writing or analysis is *not* allowed. AI tools can make mistakes, fabricate references, and lack critical nuance—you are responsible for verifying all information.
- Be transparent: If you use AI to help generate ideas, outlines, or drafts, you must acknowledge it (e.g., "I used ChatGPT to brainstorm topic ideas for this assignment").

You may use AI for:

- Brainstorming and refining your ideas
- Fine tuning your research questions
- Finding information on your topic (noting that AI is subject to hallucinations)
- Drafting an outline to organize your thoughts
- Checking grammar and style
- Generate practice quiz questions or concept checks

The use of generative AI tools is *not* permitted in this course for the following activities:

- On timed quizzes/exams for any purpose
- Submitting AI-written responses or analyses as your own (even if you introduce superficial changes to the writing)
- Using AI to generate citations or references without verifying their accuracy
- Relying on AI to replace your own critical thinking or engagement with the material

Remember that *you* are responsible for any work you submit, and you may be asked to explain the points you raised in contexts that do not afford you the support of AI (e.g., on a quiz/exam, in discussion).

Student Services

- **The Student Academic Support Center (SASC)** provides peer-led support for introductory and intermediate level courses in mathematics, statistics, programming, natural sciences, life sciences, and quantitative social sciences. Additionally, SASC provides support for students using a variety of quantitative skills required for courses across the curriculum. The Student Academic Support Center also provides a variety of workshops in quantitative skills, time management, note-taking, and study skills. Course-Attached Tutors (CATs) are embedded in courses with the highest demand for tutoring. CATs provide assistance outside of class in the

form of weekly help sessions and private appointments. SASC is located in the Peer Learning Commons (PLC) on the Ground Floor of Ladd Library. Students are invited to stop by, without an appointment, to the drop-in hours in Ladd to meet with a tutor, study independently, meet up with classmates, or to discuss learning strategies. Students who wish to set up an individual appointment can discuss options with a Resource Representative at the PLC check-in desk. For more information go to www.bates.edu/sasc or email sasc@bates.edu.

- **The Student Writing & Language Center (SWLC)** empowers Bates students in becoming more effective writers, speakers, language-users, and language-learners. Tutors provide a supportive environment for you to understand and generate ideas for your writing assignments in any subject or course; to draft, revise, and edit your writing for any purpose, context, or audience; to practice and get feedback on your oral presentations; and to study or practice writing and communicating. SWLC tutors are Bates students just like you, trained to listen to and guide you in using writing and language to achieve your personal and academic goals. Drop in to the SWLC anytime we're open to meet with a writing or language tutor. They're located in the Peer Learning Commons on the Ground Floor of Ladd Library. You can also search for subject-specific support hours or make appointments with a tutor using the Penji app: https://web.penjiapp.com/. For more information about the SWLC please visit www.bates.edu/swlc or email swlc@bates.edu.
- **Bates Counseling and Psychological Services (CAPS)** offers assistance and referral to address students' personal, social, career, and study skills needs. CAPS is located on the second floor of the Health Services Building (31 Campus Ave). You can contact them at 207-786-6200 for assistance M-F from 9:00 to 5:00 (out of hours emergency assistance can be obtained via Campus Security at 207-786-6254 or by calling 988). For additional information, see: https://www.bates.edu/counseling-psychological-services/. Services for students include:
    - Crisis and same-day emergency mental health consultations
    - Confidential assessment, counseling services (individual and small group), and referrals

Course Planning

This course requires you spend a good amount of time outside of our class meetings reading, studying, completing major assignments, and otherwise preparing to participate fully and get the most out of the experience (and a commensurate grade). For every hour you spend in class (.917 hours x 4 classes = 3.67 hours/week), federal regulations specify that you spend *at least* 2 hours outside of class doing coursework/preparation. That alone would account for 5-6 hours of time spent outside of class. But this is Bates, which has its own standard of 10-15 hours of academic work per week per course credit. That figure includes class time, meaning that you should be spending roughly 6.33-11.33 hours per week outside of class doing the reading, assignments, studying, etc. Some weeks (e.g., before a quiz or major deadline) may require more of your time outside class, but if you plan in advance and commit to dedicating regular outside time to your studies each week, it will be more manageable, with fewer week-to-week fluctuations.

The material we cover in class and the types of assigned readings (which include peer-reviewed research articles) may be unfamiliar to many students and therefore take extra time to grasp fully. If you find you need to read the material slowly and multiple times, that's not a bad sign—it means you're putting in the effort required to succeed and retain the knowledge/skills for later (go you!). If you are worried about falling behind or want more advanced work, please email me and/or drop by office hours so we can discuss the way forward. I am happy to discuss study/reading strategies and/or find additional materials to support your journey through the course and toward your personal goals.

Prospective memory involves remembering to carry out some intended action in the future. There's no reason you can't take steps now to improve your ability to carry out the appropriate actions on time, even before we cover the topic. So please, please, please take the time to review all the deadlines provided in the schedule at the end of this syllabus. Transfer them to your personal calendar immediately (and add reminders). Doing so will help you avoid scheduling conflicts and allow you to carve out the necessary time to perform your best.

Additional Resources

There are treasure troves of information about neuroscience, psychology, and related disciplines sprinkled around the interwebs—much of it can be accessed for free. If you find yourself struggling to understand a concept, I'd encourage you to search around, carefully evaluate the quality of the sources, and share useful finds with the rest of the class. Below are some resources I have identified:

- APA formatting and general reference:
    - Purdue Online Writing Lab (OWL): https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_formatting_and_style_guide
        - I posted some additional reference materials inside the "APA Style/Scientific Paper Writing Tips" submodule inside of the "Course Introduction" of Lyceum.
    - Middlebury Library: https://middlebury.libguides.com/citation/apa7
    - ECU Library: https://libguides.ecu.edu/c.php?g=982594&p=7463742
    - Video Tutorials: https://apastyle.apa.org/instructional-aids/tutorials-webinars
    - APA Dictionary of Psychology: https://dictionary.apa.org
- Searchable article databases (and tutorials):
    - Neuroscience: https://libguides.bates.edu/neuroscience
    - Psychology: https://libguides.bates.edu/psychology
    - Psychology Resources: https://www.bates.edu/psychology/resources-for-students/technical-resources/
    - APA Database Tutorials: https://www.apa.org/pubs/databases/training/tutorials
    - Google Scholar: https://scholar.google.com

- Free textbooks & related resources:
    - Neuroscience/Biological Psychology/Medical Psychology:
        - Introduction to Neuroscience (Hutchins): https://uen.pressbooks.pub/introneuro/ (this book has many excellent figures)
        - Interdisciplinary Explorations of Neuroscience (May): https://opentextbooks.rug.nl/interdisciplinaryexplorationsofneuroscience/
        - Open Neuroscience Initiative (Lim): https://drive.google.com/file/d/1n08qgzhG5-RgkoqL_Aa4y1UBSycUcy5g/view
        - Neuroscience Online: https://nba.uth.tmc.edu/neuroscience/toc.htm
        - Neuroanatomy Online: https://nba.uth.tmc.edu/neuroanatomy/index.html
        - Neuroscience (Ju): https://med.libretexts.org/Bookshelves/Pharmacology_and_Neuroscience/Neuroscience_(Ju)
        - Foundations of Neuroscience (Henley): https://med.libretexts.org/Bookshelves/Pharmacology_and_Neuroscience/Foundations_of_Neuroscience_(Henley)
        - Psychology as a Biological Science (Lindberg): https://nobaproject.com/textbooks/psychology-as-a-biological-science
        - Biological Psychology (Hove & Martinez): https://open.umn.edu/opentextbooks/textbooks/biological-psychology
        - Introduction to Biological Psychology (Hall): https://socialsci.libretexts.org/Bookshelves/Psychology/Biological_Psychology/Introduction_to_Biological_Psychology_(Hall_Ed.)
        - Biological Psychology (Keys): https://socialsci.libretexts.org/Courses/Sacramento_City_College/Psyc_310:_Biological_Psychology_(Keys)
        - The Nervous System in Action (Mann): https://michaeldmann.net/The%20Nervous%20System%20In%20Action.html
        - Neuroscience for Pre-Clinical Students (https://open.umn.edu/opentextbooks/textbooks/neuroscience-for-pre-clinical-students)
        - Computational Cog Neuro (O'Reilly et al.): https://compcogneuro.org/
        - Science of Sleep (Shook): https://open.umn.edu/opentextbooks/textbooks/the-science-of-sleep
        - Society for Neuroscience's Brain Facts: https://www.brainfacts.org/
    - Research methods:
        - Crump et al.: https://crumplab.github.io/ResearchMethods/index.html
        - Cuttler et al.: https://open.umn.edu/opentextbooks/textbooks/75
        - University of Minnesota: https://open.lib.umn.edu/psychologyresearchmethods/
        - Bhattacherjee: https://scholarcommons.usf.edu/oa_textbooks/3/
    - Statistics:
        - De Anza: https://openstax.org/details/introductory-statistics

        - Saylor: https://saylordotorg.github.io/text_introductory-statistics/index.html
        - Brown University Statistics Visualizations: https://seeing-theory.brown.edu
        - VassarStats: http://vassarstats.net
        - Effect Size Calculator: https://katherinemwood.shinyapps.io/lakens_effect_sizes/
        - Jamovi Open Stats: https://www.jamovi.org
        - Power analysis guide using G*Power: https://www.psychologie.hhu.de/fileadmin/redaktion/Fakultaeten/Mathematisch-Naturwissenschaftliche_Fakultaet/Psychologie/AAP/gpower/GPowerManual.pdf
        - Help choosing an appropriate statistical test:
            - http://www.statsflowchart.co.uk
            - https://stats.idre.ucla.edu/other/mult-pkg/whatstat/
            - https://www.statstutor.ac.uk/resources/uploaded/tutorsquickguidetostatistics.pdf
- Cognitive neuroscience methods/tools:
    - Functional Neuroimaging: https://imaging.mrc-cbu.cam.ac.uk/imaging/CbuImaging
    - FSL fMRI Analysis (free, multi-platform software and tutorials):
        - https://fsl.fmrib.ox.ac.uk/fsl/fslwiki
        - https://open.win.ox.ac.uk/pages/fslcourse/website/online_materials.html
    - Brain viewers:
        - Allen Brain Atlas: http://human.brain-map.org/mri_viewer
        - Gallant Lab: https://gallantlab.org/brain-viewers/
        - Neurosynth: https://neurosynth.org/
    - Event-related potentials (ERPs): https://erpinfo.org
    - Neurofeedback: Open-source Python/Matlab framework (OpenNFT): http://opennft.org/
- Videos:
    - 2-Minute Neuroscience: https://www.youtube.com/channel/UCUgZq9PkDp1xaEivtcfJPSg
    - Nancy's Brain Talks: https://nancysbraintalks.mit.edu/
    - TED Studies: https://www.ted.com/read/ted-studies/neuroscience
    - Khan Academy: https://www.khanacademy.org/test-prep/mcat/behavior#concept-intro
    - HarvardX Neuroscience: https://vimeo.com/mcb80x
- Effective studying:
    - https://www.samford.edu/departments/academic-success-center/how-to-study
- Neuropsychiatric conditions:
    - A list of more than 400 neurological disorders from the National Institute of Neurological Disorders and Stroke can be found here: https://www.brainfacts.org/diseases-and-disorders/neurological-disorders-az

- The Diagnostic and Statistical Manual of Mental Disorders (DSM-5-TR) is available for reference at the Ladd Library (RC455.2.C4 A48 2022)

About the Instructor

Well, hello there! I'm excited to be your instructor for this course. In case you're wondering who's lecturing excitedly about action potentials and cats multiple times a week, here's a bit about me (I'll save you the trouble of Googling since your coursework will likely keep you busy enough). I joined Bates College in 2024 after spending nine years at Bard College, where I served as chair of the Psychology Program (I'm now chair of the Neuroscience Program). My background is in psychology, with a focus on the cognitive neuroscience of human memory—especially the fascinating (and often misunderstood) process of forgetting. I earned my bachelor's degree from the University of Pennsylvania in 2005 on full scholarship, completing two theses: one on memory consolidation during sleep and another on how children learn mentalizing verbs like "to think." While at Penn, I also worked as a wedding videographer and held several research positions, including clinical research at the Children's Hospital of Philadelphia. My path through graduate school was quite the adventure—both literally and figuratively (ask me about it sometime!). I received my Ph.D. from the University of Cambridge, where I was affiliated with St John's College and the Medical Research Council's Cognition and Brain Sciences Unit. Afterward, I returned to New Jersey (where I grew up) for a postdoc at the Princeton Neuroscience Institute (I didn't actually grow up *in* the Institute) before joining the faculty at Bard. It was in Princeton that I found my two cats, Mandy and Jerri (sisters from the same litter). They quickly became my inspirations, portable space heaters, and sage meditation teachers. Two more tidbits about me: I have aphantasia and severely deficient autobiographical memory (SDAM)—conditions that are only starting to be explored in neuroscience. Regardless, I have no doubt that we'll find ways to make this semester memorable for everyone!

Tentative Course Schedule

Week	Date	#	Topic	Readings/Media *(come prepared for class)*	Assignments
1	1/14 (w)	1	**Introduction to Introduction to Neuroscience**	*Optional: Ch. 1 "What is neuroscience?"*	
	1/15 (r)	2	**Discussion Day: Ownership of the Brain & Body**	The mystery of Harriet Cole - Lyceum	
	1/16 (f)	3	**Neuroanatomy I**	Ch. 21-22	
2	1/19 (m)	--	**MLK Jr. Workshop Day (No Class)**		
	1/21 (w)	4	**Neuroanatomy II**	Ch. 23-24	
	1/22 (r)	5	**Discussion Day: Growing Human Neural Circuits**	Science Friday: Brain 'organoids' - Lyceum Organoid ethics - Lyceum	
	1/23 (f)	6	**Anatomy of a Neuron** ▸ Quiz #1 study guide released ▸ *Take-home practice quiz released (Lyceum)*	Ch. 2, 4	
3	1/26 (m)	7	**Ions and the Membrane** ▸ *Take-home practice quiz answers released* ▸ *Discuss Neuro Explainer assignment*	Ch. 5-6	
	1/28 (w)	8	**Resting Membrane**	Ch. 7	
	1/29 (r)	9	**Discussion Day: Neuroscience Beef**	A cold day in Stockholm - Lyceum	
	1/30 (f)	10	**Quiz #1**		
4	2/2 (m)	11	**Electrical Activity in Neurons**	Ch. 8	
	2/4 (w)	12	**The Action Potential**	Ch. 9	
	2/5 (r)	13	**Discussion Day: Psychedelics**	Can psychedelics be decolonized? - Lyceum	

Week	Date	#	Topic	Readings/Media *(come prepared for class)*	Assignments
	2/6 (f)	**14**	**Synaptic Transmission** ▸ Quiz #2 study guide released	Ch. 11-12	
5	2/9 (m)	**15**	**Receptors and Neurotransmitters**	Ch. 13-16	By **11:59pm** have submitted **Neuro Explainer #1**
	2/11 (w)	**16**	**More Neurotransmitters**	Ch. 17-19	
	2/12 (r)	**17**	**Discussion Day: Neural Noise Is Not a Bug**	Noise in the nervous system - skim review article on Lyceum	
	2/13 (f)	**18**	**Quiz #2**		
6	2/16 (m)	--	**February Recess**		
	2/18 (w)	--	**February Recess**		
	2/19 (r)	--	**February Recess**		
	2/20 (f)	--	**February Recess**		
7	2/23 (m)	**19**	**Visual System: The Eye**	Ch. 28-29	
	2/25 (w)	**20**	**Visual System: The Brain**	Ch. 30	
	2/26 (r)	**21**	**Discussion Day: Bayesian Brain** ▸ Course feedback survey (online, anonymous)	Your brain hallucinates your conscious reality - Lyceum Synaptopathy and the Bayesian brain - Lyceum	
	2/27 (f)	**22**	**Audition** ▸ Quiz #3 study guide released	Ch. 31-32	By **11:59pm tonight** have completed the Lyceum **Course Feedback** survey (anonymous)
8	3/2 (m)	**23**	**Chemical Senses** ▸ Course feedback discussed	Ch. 34-35	
	3/4 (w)	**24**	**Touch and Pain**	Ch. 36-39	

Week	Date	#	Topic	Readings/Media *(come prepared for class)*	Assignments
	3/5 (r)	**25**	**Discussion Day: When Priors Hurt: Pain, Prediction, and Racial Bias**	Racial differences in pain assessment and false beliefs about race in AI models - Lyceum	
	3/6 (f)	**26**	**Quiz #3**		
9	3/9 (m)	**27**	**Motor Systems**	Ch. 40, 43-44	
	3/11 (w)	**28**	**Motor Impairments**	Ch. 45-46	
	3/12 (r)	**29**	**Discussion Day: Stress**	The intersection of poverty and stress - Lyceum Testosterone is misunderstood - Lyceum	
	3/13 (f)	**30**	**Autonomic Nervous System**	Ch. 27	By **11:59pm** have submitted **Neuro Explainer #2**
10	3/16 (m)	**31**	**Emotions** ▸ Quiz #4 study guide released	Ch. 58-59	
	3/18 (w)	--	**March Recess**		
	3/19 (r)	--	**March Recess**		
	3/20 (f)	--	**March Recess**		
11	3/23 (m)	**32**	**Stress & Anxiety**	Ch. 60-62	
	3/25 (w)	**33**	**Discussion Day: Memory Erasure**	Partial recall - Lyceum	
	3/26 (r)	**34**	**Quiz #4**		
	3/27 (f)	**35**	**Circadian Rhythms & Sleep**	Ch. 56-57	
12	3/30 (m)	**36**	**Learning**	Ch. 66-67	
	4/1 (w)	**37**	**Memory & LTP/LTD**	Ch. 68	
	4/2 (r)	**38**	**Discussion Day: Amnesia**	Patient H.M. - Lyceum	
	4/3 (f)	**39**	**Feeding Behavior** ▸ Quiz #5 study guide released	Ch. 48	By **11:59pm** have submitted **Neuro Explainer #3**

Week	Date	#	Topic	Readings/Media *(come prepared for class)*	Assignments
13	4/6 (m)	**40**	**Reward Pathway & Addiction**	Ch. 49-50	
	4/8 (w)	**41**	**Consciousness**		
	4/9 (r)	**42**	**Discussion Day: Free Will**	Determined - Lyceum	
	4/10 (f)	**43**	**Quiz #5**		
14	4/13 (m)	**44**	**Attention & Neglect** ▸ Quiz #6 study guide released		
	4/15 (w)	**45**	**Major Depressive Disorder**	Ch. 63	
	4/16 (r)	**46**	**Discussion Day: Traumatic Brain Injury** ▸ Engagement assessment	Ban College Football intelligence[2] debate - Lyceum Competitive sports and competitive science - Lyceum	By **11:59pm** have submitted **Final Reflection**
	4/17 (f)	**47**	**Alzheimer's Disease** ▸ Reflection on Learning Experience (ROLE) survey	Ch. 47	By **4:00pm** have completed **Research Participation** or submitted **Alternative Assignments** (including **Extra Credit**)
15	4/20 (m)	--	**No Class (Exam Week)**		
	4/22 (w)	**48**	**Quiz #6 (cumulative, in Pettengill G21) from 1:15-2:10pm** (i.e., the first 55 mins. of our final exam time)		
	4/23 (r)	--	**No Class (Exam Week)**		
	4/24 (f)	--	**No Class (Exam Week)**		
	4/27 *(m)*	--	**No Class (Exam Week)**		

Schedule is subject to change to improve pacing and/or accommodate unforeseen events (e.g., severe weather, pandemic, alien abduction). Check announcements over email.