

# PSYCH 330: Introduction to Neuroscience - Syllabus

UMass Amherst University Without Walls  
Summer Session 1 (May 17 - June 25, 2021)

## Instructor Information:

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**Office Hours:** Sarah will be available via Zoom (Meeting ID: 913 4108 2915, Password: brains) every Friday from 12:30 – 1:30pm to answer questions. If you are unable to make this time but would like to meet with Sarah, please set up an appointment via email.

**Synchronous Class Meetings:** Lectures will be held synchronously every Monday from 11am – 12:30pm via Zoom (Meeting ID: 913 4108 2915, Password: brains). All lectures will be recorded, and the videos will be posted on Blackboard by Monday evenings. Attendance at lectures is *not required* but is encouraged. Attendance will not count toward your grade.

**Prerequisites:** Psych 100 or Bio 151. Students should have knowledge of basic cell biology in order to succeed in this course. Consider taking Psych 191-B (Principles of Biology) if it has been a while since you've thought about cell structure, DNA, or proteins.

**Learning Objectives & Applications:** This course will introduce students to core concepts in the study of neuroscience, with a focus on the biological basis of behavior. By the end of the session, students will have a basic understanding of (1) the structure and function of the nervous system, (2) information input and output in the nervous system, (3) higher order functions such as sleep, learning and memory, and language, and dysfunctions of these processes, and (4) methods in neuroscience research. This course provides a foundation for upper-level neuroscience electives and labs. For non-neuroscience track students, this course will still help develop an understanding of the neural basis of a psychology and behavior, which can be applied to fields of counseling, education, medicine, computer science, and more.

**Class Website:** The syllabus, handouts, readings, and link to turn in papers can be found on Blackboard ([uma.umassonline.net](http://uma.umassonline.net)). From here, log on to Blackboard with the same username and password you use for your UMass email and/or Spire login.

**Class Slack:** Slack is a tool that is similar to WhatsApp or other messaging platforms that allows for speedy communication. There is a Slack page that can be used to ask Sarah questions about class related material or logistical questions, or to discuss topics with your classmates. To download Slack on [Windows click here](#), [Mac click here](#), [Android click here](#), on a [iPhone click here](#). Once Slack is downloaded, you can join our class Slack space using [this invitation link](#). We will be using slack as an informal mode of communication. This is not required, but it is a useful tool.

**Required Materials:** All required readings and videos will be provided for students on the course's Blackboard page as PDFs and web links.

**Online Learning:** This course is delivered entirely online. I have designed the course to use a blend of synchronous and asynchronous work. This six-week course will cover a semester's worth of material at an **accelerated pace**. Accordingly, you should plan to spend about 2 hours a day or 10 hours every weekday on this course. Depending on your learning style, your time commitment may be even more. Online courses have some advantages over traditional classes (such as accessibility and flexibility) but there are some potential disadvantages too (such as the need to be disciplined and self-motivated). Taking an online course is not an ideal option for everyone, so please consider carefully whether this course is truly a good fit for your academic needs, ability, and learning style. If internet or other technical issues come about across this session, it is your responsibility to resolve these issues in a timely fashion. The UMass IT Help Desk and eLearning Staff are available for technical support issues if need be.

**Academic Honesty:** Since the integrity of the academic enterprise of any institution of higher education requires honesty in scholarship and research, academic honesty is required of all students at the University of Massachusetts Amherst. Academic dishonesty is prohibited in all programs of the University. Academic dishonesty includes but is not limited to cheating, fabrication, plagiarism, and facilitating dishonesty. Appropriate sanctions may be imposed on any student who has committed an act of academic dishonesty. Instructors should take reasonable steps to address academic misconduct. Any person who has reason to believe that a student has committed academic dishonesty should bring such information to the attention of the appropriate course instructor as soon as possible. Instances of academic dishonesty not related to a specific course should be brought to the attention of the appropriate department Head or Chair. Since students are expected to be familiar with this policy and the commonly accepted standards of academic integrity, ignorance of such standards is not normally sufficient evidence of lack of intent. Please see [umass.edu/dean\\_students/codeofconduct/acadhonesty](http://umass.edu/dean_students/codeofconduct/acadhonesty) and [umass.edu/honesty/](http://umass.edu/honesty/) for more information.

**Accommodations:** The University of Massachusetts Amherst is committed to providing an equal educational opportunity for all students. If you have a documented physical, psychological, or learning disability on file with Disability Services (DS) at UMass Amherst or your home university, you may be eligible for reasonable academic accommodations to help you succeed in this course. If you have a documented disability that requires an accommodation, please notify me within the first week of the session so that we may make appropriate arrangements. For more information, consult the Disability Services website at [umass.edu/disability/](http://umass.edu/disability/).

**Help:** Sarah is here to help you learn! Please ask for assistance with understanding the material if you need more support or some clarity, bring questions to Slack, come to office hours, or email Sarah to schedule an appointment over Zoom.

## Assignments and Grading

**Newsrooms (15%):** Science communication is the practice of translating important scientific findings to typically non-scientist audiences, usually with the goal of informing decision-making. Neuroscience research is often the topic of popular press articles. For Newsroom assignments, your job is to find a news article that (1) relates to the topic we've been discussing on the week the assignment is due and (2) allows you to answer a few short discussion questions about the research in this article and how this research is communicated. There are 3 Newsrooms, **each worth 10 points for a total of 30 points.**

**Data Dives (15%):** Neuroscience research is active and ever developing. It is important as a scientist to cultivate a strong sense of which methods researchers use to ask their questions, and how to interpret the data researchers generate to answer these questions. In Data Dives, you will be presented with a graph or two from a recent research article on a topic aligned with what we have been talking about in class that week. You will have access to the article as well as a brief summary of the research and important methods written by Sarah. Your job is to (in a paragraph or so) interpret the data by determining *what does the graph say?* and *what does the graph mean?* There are 2 Data Dives, **each worth 15 points for a total of 30 points.**

**Review and Reflect (20%):** We will be covering a large amount of material in a short amount of time. In order to digest each unit's content, these discussion forum posts will allow you to apply what you have learned to answer thought provoking questions. You are asked to post questions and respond to other's posts based on your own understanding of the material. These posts are due on Thursdays to allow time for discussion responses and feedback before the unit closes on Sunday. There will be six review and reflect assignments, of which students must complete five. If students complete all six assignments, their lowest grade will be dropped. **Each review and reflect is worth 8 points, for a total of 40 points.**

**Quizzes (50%):** There will be a weekly quiz covering that week's content, with an emphasis on material covered on the lecture slides. **Each quiz is worth 20 points for a total of 120 points.**

**Optional Final:** You may choose to take the optional *cumulative* final exam to replace your two lowest quiz scores. The final is graded out of 40 points. If you receive a 36/40 (90%), then your two lowest quiz scores will each be replaced with a grade of 18/20 (90%). If you have taken all quizzes during the semester and are satisfied with your grade, you do not have to take the final. The final will only replace a quiz if it helps your grade.

**Extra Credit:** You may earn **up to 10 extra points** by submitting a 2 page (double spaced 12pt Times font) "research proposal" by the last day of the session (6/25). In this proposal, describe a research question that you have based on what you've learned in class, the significance of this question (why it is important to answer the question), how you (as the researcher) would go about answering this question in a lab setting (using methods we've discussed in class), and what you hypothesize you might find, based on what we've covered in class. No outside materials are required, however, reading and properly citing primary literature about your research question is encouraged!

**Final Grade Calculations:** The course is graded out of 200 total points. Extra credit is counted as extra points toward the 200. See calculation below.

$$\text{Final Grade Percent} = \frac{[(\text{Total Points Earned} + \text{Extra Credit}) / 200] * 100}{}$$

A	94-100%	C+	77-79.9%
A-	90-93.9%	C	73-76.9%
B+	87-89.9%	C-	70-72.9%
B	83-86.9%	D+	67-69.9%
B-	80-82.9%	D	60-66.9%
		F	< 59.9%

For final grades, percentages 0.5 or higher are rounded up to the nearest whole number. Letter grades are assigned according to the breakdown shown above.

**Due Dates:** On the final page of this syllabus, you will find the class schedule, including unit themes, assignments, and due dates. On Blackboard, a new unit will open every Monday morning for you to begin working on. Except for the final week of the session, all quizzes are due on Sundays and all other assignments are due on Thursdays. **All assignments must be handed in by 11:59pm on the day it is due. Late assignments will lose 1 point per day after the deadline.**

# Introduction to Neuroscience

## Summer Session 1 Schedule

*Subject to change as necessary*

Unit	Lecture Date	Lecture Topic	Readings & Videos	Assignments	Due Date
1	May 17	Introduction to neuroscience, cells of the nervous system, and neuroanatomy	Palermo and Morese - Chapter 1 OpenStax A&P Chapter 12, p. 503 - 19 Chapter 13 Biological Psych - Chapter 7	Review & Reflect 1	Thursday 5/20
				Newsroom 1	Thursday 5/20
				Quiz 1	Sunday 5/23
2	May 14	Neurophysiology	OpenStax A&P Chapter 12, p. 523-34	Review & Reflect 2	Thursday 5/27
				Data Dive 1	Thursday 5/27
				Quiz 2	Sunday 5/30
3	May 31	Neurotransmitters and Neuropharmacology	OpenStax A&P Chapter 12, p. 535-538 McGill Video: Drugs Neuro Online Links	Review & Reflect 3	Thursday 6/3
				Newsroom 2	Thursday 6/3
				Quiz 3	Sunday 6/6
4	June 7	Sensation, Perception, and Action	OpenStax A&P Chapter 5 (all) Section 14.3 (Motor Response) Brain and Behavior - Sleep	Review & Reflect 4	Thursday 6/10
				Data Dive 2	Thursday 6/10
				Quiz 4	Sunday 6/13
5	June 14	Neuroendocrinology and Emotions	Breedlove & Watson Chapter 5 (all) Chapter 15, p. 488-495 Mcgonigal Stress Ted Talk	Review & Reflect 5	Thursday 6/17
				Newsroom 3	Thursday 6/17
				Quiz 5	Sunday 6/20
6	June 21	Learning, Memory, and Language	OpenStax A&P Chapter 8 (all) Crash Course Videos: Memory McGill Video: Language	Review & Reflect 6	*Weds 6/23
				Quiz 6	*Weds 6/23
				Optional Final Exam	*Friday 6/25