

BIPN 148 COURSE DESCRIPTION: This course will include an in-depth presentation of the mechanisms for learning and memory at the molecular, cellular, and systems levels. A goal of the course is to introduce students to current topics in learning and memory research, while also learning the fundamental concepts about the **biology** of learning and memory. To reach this goal this course will also teach students to read and interpret primary research literature. **BIPN 148 has been switched to a remote course for Fall Quarter 2021. Note that lectures, discussion sections, and exams will be synchronous. However, I have built flexibility into the course should you need to complete any coursework or assignments asynchronously.**

WELCOME STATEMENT: Welcome to BIPN 148. This has been a challenging year for many reasons, including the ongoing COVID-19 pandemic. As your Professor, I value your health, wellbeing, and learning. This quarter I will challenge you in this course to deepen your understanding of how the brain works in the service of memory and to grow your curiosity and critical thinking skills. However, this is not at the expense of your wellbeing. I have built flexibility into the course should you need to complete any coursework or assignments asynchronously. Beyond physical health, I encourage you throughout the quarter to make time for yourself to recharge, relax, and rejuvenate, which will aid in your brain's ability to encode and store new information. We will soon learn the biology behind this statement, and why you should all be trying to get enough sleep. You will see in my grading policies that I drop one exam score, as well as several assignments. This will help with bandwidth when you have challenging weeks or an occasional absence. However, if you have prolonged issues that are affecting your ability to meet the expectations of the course please communicate early on so you are aware of options that often have specific deadlines for implementation.

INSTRUCTOR: Jill Leutgeb, Ph.D., Professor of Neurobiology
email: jleutgeb@ucsd.edu

Office hour: **In person** = Wednesdays, 1:30-2:30 pm, TATA Hall room 3103

Remote = Thursdays, 3:00 – 4:00 pm, via Zoom (see Canvas for link)

INSTRUCTIONAL ASSISTANTS:

Ana Rose	Discussion Section	A01	amrose@ucsd.edu
Arthur Endo	Discussion Sections	A02, A04	atendo@ucsd.edu
Vy Nguyen	Discussion Section	A03	vxnguyen@ucsd.edu
Gautam Narayan	Discussion Section	A05	gnarayan@ucsd.edu
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Nidhi Checka	Discussion Section	A08	nchecka@ucsd.edu

IA Office hours: See the class Canvas site for day/time listings and Zoom information. Office hours will begin the week of October 4th. There will be an office hour offered each day of the week. Additional Exam Review Sessions will not be scheduled by IAs for this course. Instead, please take advantage of weekly office hours in addition to weekly Discussion Sections. IAs will also monitor the Discussion Board daily. Therefore, there are many ways to receive additional instruction that are more productive and flexible than a typical review session.

COMMUNICATION: Please contact the instructor directly only in case of an emergency or personal issue related to course performance. The best way to contact the instructor is via email. Please email your instructional assistant (IA) only for procedural issues related directly to you, but not about course content. In all emails, please put 'BIPN 148' in the subject line to indicate your email is about this course. To ask questions about course content: attend office hours provided by Dr. Leutgeb or any of the IAs (dates/times listed on Canvas), or type your question at any time into the Discussion Board on Canvas. The Discussion Board is monitored daily. This mechanism is preferred to email as it allows all students to benefit from the provided answer from IAs or the Instructor. Because of the large number of students in this course, we cannot answer individual questions on course content via email and these emails will be deleted.

PREREQUISITES: Please make sure to review information about the nervous system from prerequisites BILD 2 and BIPN 100 as well as other physiology/neuroscience classes. Students should have a strong basis in understanding neuronal signaling, including temporal and spatial summation of dendritic input, as well as changes in synaptic integration (course topics introduced in BILD2 and expanded in BIPN100 and BIPN140). IAs will include a primer of these topics the first week of discussion section to refresh your memory.

COURSE SCHEDULE: Tuesday, Thursday 9:30-10:50am, via Zoom

See the 'BIPN 148 Course Schedule' document on Canvas for a lecture by lecture outline of course content, assignments, and exams.

REQUIRED MATERIALS

Textbook and Journal Articles

Textbook: *Memory, From Mind to Molecules*, 2nd edition, by L. R. Squire and E. R. Kandel (2010)

1) **Textbook availability:** To keep costs down for UCSD students the book author has approved the preparation of an eBook by the UCSD bookstore. The eBook is available for \$12.95 from the bookstore:

<https://ucsandiebookstore.com/p-90354-x-reprint-memory-from-mind-to-molecules-not-returnable.aspx>

Other options: Physical reprints are available in black and white and retail for \$25.00. This will be a print on demand option and must be pre-paid. Timeframe for reprint would be 3-5 business days, then ship out or pick up option for receiving the physical print copy. If you prefer this option over the readily available eBook you should call 858-534-4557 or email custom@ad.ucsd.edu to purchase a printed copy of the book.

2) **Journal articles and reviews will also be assigned.** The required readings for each lecture are listed in the 'Course Schedule'. Journal articles will be available as pdf files on the course Canvas website. Lecture content should be used to determine what course material is most important for exam assessment. Discussion sections will aid in helping students focus on the most important topics in the assigned reading and primary literature. The course will follow the textbook closely during the first half of the quarter; whereas journal articles will serve as the primary source material for the more recent findings discussed in the second half of the quarter (see the 'Class Schedule' document on Canvas for details). The textbook will still discuss later topics and place them into context within the learning and memory field, however, lectures and assigned articles will exceed the textbook in detail and the discussion of primary research results. Three assigned journal articles of particular significance to course content will serve as sources for graded writing prompts. More detail can be found below on this topic.

Access to Canvas

Course Website: There is a Canvas site for the course. To access this course, visit

<https://canvas.ucsd.edu/courses>. You can also use <http://coursefinder.ucsd.edu>, which will take you to all of your courses on Canvas. If you need any technical assistance with Canvas please send an email to

servicedesk@ucsd.edu. Student accounts are added on the first day of class. Instruction on how to access your account for logging on to UCSD's Canvas sites can be found here: <http://acms.ucsd.edu/students/accounts-and-passwords/index.html>. Concurrent enrollment (extension) students are not added automatically. More

information for extension students can be found here: <https://extension.ucsd.edu/student-resources/>

Please check the Canvas site often. Announcements, updates, lectures, lecture slides, Zoom links, reading material, class discussion forums, exam administration, and grades will all be communicated using the course Canvas website.

Computer or tablet and internet connection

BIPN 148, will be taught entirely online Fall Quarter, 2021. In order to participate this quarter you will need a computer or tablet and a stable internet connection. It is difficult to get by using a smart phone as some course content may not work via the phone, possibly including quizzes.

If you don't have a computer/tablet at home and are concerned about affording one, email vcsa@ucsd.edu to ask if they can help.

Please make sure that you check out this website for resources on how to best learn remotely:
<https://digitallearning.ucsd.edu/learners/learning-remote.html>

HOW THIS COURSE WILL BE ORGANIZED THIS QUARTER

Reading

Reading assignments are provided for each lecture (see class schedule). Lecture content should be used to determine what course material is most important and what to focus on in your reading. Journal articles that are 'Review' articles can be very dense and include information beyond the course content. For this type of reading material focus your attention to the content that aligns with topics presented in lecture.

Lectures

Lectures will be held synchronously on Zoom during our scheduled course time. You will need to set up a Zoom account. UCSD has purchased a Zoom site license for all students, staff, and faculty. You will need to install Zoom on whatever device you plan to use for the quarter. Go to <https://ucsd.zoom.us/> to get started. Zoom links for each lecture will be provided on Canvas. **You need to be authenticated via Zoom to join (please login to Zoom with your UCSD credentials before the lecture).**

Lectures will be offered synchronously to allow students to engage in the lecture and ask questions as the information is presented. Attendance is not mandatory during the regular lecture time, but recommended as course engagement and discussion is critical for better understanding complex data. Please utilize this best practice learning opportunity and ask questions during lecture. Lectures will be recorded and posted on the Canvas course site for later viewing and review. **If you do not view a lecture synchronously, you will need to watch the lecture by the start of the next scheduled class period as LCQs (see below) based on that lecture are due before the next scheduled lecture.** If the quality of lecture becomes compromised (power outage, long and frequent internet interruptions) then a new recorded lecture will be uploaded (without audience) to replace that lecture. If this becomes a regular problem, then the course will switch to posting asynchronous prerecorded lectures. Any changes will be discussed and announced in class and on Canvas.

Lecture Content Questions (LCQ)

Each lecture is associated with post lecture questions ('Lecture Content Questions'; LCQs). These questions will help you prepare for exams, and should be considered practice exam questions. These will be completed in Canvas, and graded upon completion (1 point each). You will be allowed multiple attempts to achieve the correct answer. A lecture LCQ becomes active after the associated lecture and is due (closes) at 9:30am the following scheduled lecture day. You are strongly encouraged to monitor how well you do on these questions. If you find that you often get them wrong on the first try, than change your study strategy. There will be a total of 32 LCQs (2 per lecture). **You will need to complete 26 LCQs to receive full credit.** This means there will be no makeup of LCQs past the due date, as you have 6 passes that will cover any unexpected issues such as illness, technical problems, or excused absences.

Exams (called Quizzes in Canvas)

Four in class exams will be given throughout the quarter on the dates indicated in the course schedule (also listed below). Each exam covers the material from the previous 4 lectures. The exams will be administered on Canvas, using a similar format to the LCQs for each lecture. **Each exam will be 40 minutes long and will be available at 9:45am and close at 10:50am.** Your 40 minutes begins as soon as you start the Quiz on Canvas, but will close at the closing time even if you have not completed your 40 minute limit. For this reason be sure to start early enough to

allow yourself the whole 40 minutes if needed. Exams are scheduled during lecture time for BIPN 148 as scheduled by the Registrar, so you should not have class conflicts during these times. Canvas will allow you to answer each question in turn and allow you to go backward within the exam. Each student will receive questions in a random order with answer choices randomized. There are multiple versions of the exam. The final exam will be 60 minutes long and will be available at 8:30am and close at 10:00am.

Exam Schedule:

Exam 1	Tuesday, October 12 th	Lectures 1-4
Exam 2	Tuesday, October 26 th	Lectures 5-8
Exam 3	Tuesday, November 16 th	Lectures 9-12
Final Exam	Thursday December 9 th	Lectures 13-16 and old material (cumulative)

Exams are multiple choice, with Exams 1-3 totaling 15 points, and the Final Exam 20 points. **Your lowest exam score for Exams 1-3 will be dropped.** The overall exam score will be out of 50 points (top 2 exam scores + the Final Exam). This policy will cover the occasional technical glitch or sick day. This will be your lowest-scoring exam which will be dropped. For this reason, it is strongly recommended that you study for and take all exams so you have an insurance policy against something going wrong for one of them.

If you cannot take ONE of the exams at the scheduled time, it is fine, that will be the score that gets dropped. If you know in advance that you absolutely cannot take 3 of the exams at the scheduled times, than email the course instructor BEFORE the first exam. During the quarter, if you become unable to take an exam due to serious illness or other emergency AND you have already missed one exam, email the instructor before the exam (the earlier the better) and we will discuss your options. Keep in mind to switch to an Incomplete near the end of the Quarter you need to have a passing grade. If you have missed too much class material due to illness and are failing the class you should contact the Dean of your College to initiate other options. If you are an international student and the time windows provided are out of waking hours please contact the instructor BEFORE the first exam.

The exams will be administered on Canvas, using a similar format to the LCQs for each lecture. If you have had technical problems taking the LCQs, please resolve those by the time of the first exam. The IT people have suggested updating your web browser or using Chrome if you are having problems. If that fails, email servicedesk@ucsd.edu.

Take the exams on your own, without help from other people or other resources other than your own brain. The exams are closed-book, meaning that you may not consult the book/readings, lectures, Internet, etc. Do not discuss or share information about the exam with other students in the class until the exam is over. We may opt to use "Proctorio" if the protocol for exam administration is changed for any reason from the timed multiple choice option described above. Please review the Academic Integrity policy at the end of this syllabus.

Students suspected of academic integrity violations on exams will be invited to Zoom follow-up meetings where they will be asked to (in real time, on video) justify their answers. If the instructor isn't convinced during the meeting, or if the student refuses to participate, the violations will be reported to the Academic Integrity Office.

Writing Prompts (You are now a popular science writer)

A primary goal of this course is to better understand how to read and interpret primary research literature. We will use as source information many prominent and important original research papers in the field of learning and memory. Three of these seminal papers have been selected as potential topics for your writing prompts (see * [blue references](#) in your Course Schedule). More detailed instruction on this topic will be available on Canvas, as a topic in Lecture 9, and discussed in Discussion section during week 6. In short, you will be expected to select 2 of the 3 selected references to serve as sources for your 2 writing prompts (20 points each, 40 points total). Writing prompts will be turned in using Canvas (turnitin) and the due date is ~two weeks after we discussed the paper in lecture (indicated by the posted Canvas assignment). **Your writing prompts need to be turned in by 9:30am on the assigned day. You can ignore the assignment due date on Canvas for the writing prompt paper you did not select. Please do not submit a 3rd writing prompt to grade. We will only grade 2 per person.**

Assignment. You are asked to write a one page (400-700 word) popular science article intended to inform the general audience of the significant advances and research published in the research articles selected. You will need to understand and interpret the research article so that you can clearly communicate its contents and impact to a nonscientific audience. To do this well you will need to have a solid understanding of the key findings of each paper. This is an important skill and one that scientists should do more often. You will be provided with the grading rubric beforehand (see Canvas) so that you are aware of how and what will be graded in your written piece.

You will need to be careful to not borrow or be inspired by language or material from other sources on the Internet as well as past classes. Plagiarism will be assessed and monitored. Be creative and speak from your own voice when writing your prompts.

Writing Prompt List: Select 2 from the list of 3 to complete and turn in on or before the corresponding deadline.

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|---|---|
| 1) Whitlock et al., (2006) <i>Science</i> | Due Thursday, November 18 th |
| 2) Nabavi et al., (2014) <i>Nature</i> | Due Tuesday, November 23 rd |
| 3) Bakker et al., (2008) <i>Science</i> | Due Thursday, December 2 nd |

Clickers

Clickers will not be used for this course when taught remotely.

Lecture slides

Lecture slices will be available on Canvas after each lecture. Use these to review and test yourself on course content.

Canvas Discussion Board

There will be discussion boards on Canvas where you can post your questions and answer other students' questions. IAs will monitor and answer questions daily, but I also encourage you to help each other! Please be respectful and courteous.

DISCUSSION SECTIONS: Sections will NOT meet during the first week of the quarter; they will start the week of September 27th. The date and time of each section is listed in the Fall Quarter Schedule of Classes. Discussion sections will be offered via Zoom. Zoom links for each section are provided on Canvas. You need to be authenticated via Zoom to join (please login into Zoom through your UCSD credentials before the meeting). Attendance at section is optional, but when assessed in previous years, the majority of students who attended BIPN148 section greater than 70% of the time received a B+ or higher in the course. The sections are designed to provide a forum for you to ask questions about the course material, and receive additional instruction. The following will ONLY be covered in section: review of basic neurobiology concepts, instruction for reading primary research literature, discussion of LCQ questions and answers, review of correct answers for course exams, instruction of writing prompt rubric, feedback on first writing prompt draft, exam review.

GRADING:

Your final grade is based upon the following: (with % of final course grade indicated)

- 1) LCQs (1 point each, 2 per lecture, 32 points possible) = 10%
- 2) Writing Prompts (20 points each, 2 expected, 40 points possible) = 30 %
- 3) Exams (Exams 15 points each, 30 points possible + Final exam, 20 points possible) = 60%

To determine your overall grade, please use the following formula:

Total course percentage = [(% of total LCQ points) x 0.10] + [(% of total writing prompt points) x 0.30] + [(% of total exam points) x 0.60]

Grading Scale: (based on total course percentage, decimal places are rounded to the nearest whole number)

A+	98% to 100%
A	93% to <98%
A-	90% to <93%
B+	86% to <90%
B	83% to <86%
B-	80% to <83%
C+	76% to <80%
C	73% to <76%
C-	70% to <73% (everything above this line is considered passing if grading P, NP)
D	<70% to 60% (there is no D+ or D-)
F	< 60%

ETIQUETTE FOR EMAILS AND THE ONLINE CLASSROOM: All emails to the IAs and professor should be polite and respectful, include your first and last name in the body of the email, and have BIPN 148 in the subject line. Do not rely on email as a sure and immediate form of communication with the instructor. I will do my best to answer emails within two business days. Please have read the course Syllabus before sending an e-mail.

Please do NOT post lectures or class documents on public websites like Course Hero, Chegg, or others.

LETTER OF RECOMMENDATION POLICY: I only write letters of recommendation for students that I have gotten to know personally by either having worked in my laboratory, served as an instructional assistant in one of my courses, served on a committee I chaired, participated in coffee with a professor, asked questions in lecture or attended office hours regularly. If a student has performed exceptionally well in the course, but does not fit into these categories, I would only be able to provide a brief letter that provides a description of this course, and your rank within the class. These types of letters do serve a purpose in some circumstances, but may not be well suited for applications to medical school or graduate school. An agreement to write such a letter would also be contingent upon my workload obligations and the time available between the request and the deadline. Please be aware of this policy while determining your involvement in the course. You may also want to consider taking a BIPN 194 seminar course to interact closely and regularly with a Neurobiology professor in a small class size with lots of discussion. Such interactions may better facilitate the type of Recommendation Letter you are seeking.

STUDENTS WITH SPECIAL CIRCUMSTANCES: UCSD is committed to education for all people. Services and reasonable accommodations are available to students with temporary and permanent disabilities, to students with DACA or undocumented status, to students facing mental health issues, other personal situations, and to students with other kinds of learning needs. Please feel free to let the instructor know if there are circumstances affecting your ability to participate in class. Some resources that might be of use include:

- Office for Student with Disability, <https://students.ucsd.edu/well-being/disability-services/index.html>
- UC San Diego CAPS (Counseling & Psychological Services), <https://wellness.ucsd.edu/CAPS/Pages/default.aspx>
- UC San Diego Undocumented Student Services, <https://uss.ucsd.edu/> Note: a list of campus resources can be found here: <https://students.ucsd.edu/sponsor/undoc/resources/index.html>
- Learning Strategies Center, <https://commons.ucsd.edu/academic-support/learning-strategies/index.html>

Students requesting accommodations and services due to a disability for this course need to provide a current Authorization for Accommodation (AFA) letter issued by the Office for Students with Disabilities (OSD), prior to eligibility for requests. Receipt of AFAs in advance is necessary for appropriate planning for the provision of reasonable accommodations. OSD Academic Liaisons also need to receive current AFAs. For more information, contact the OSD at (858) 534.4382 (V); (858) 534-9709 (TTY); osd@ucsd.edu, or <http://osd.ucsd.edu>. **You will need to coordinate scheduling of exams with the instructor. All of these arrangements should be made within the first two weeks of the quarter.**

ACADEMIC DISHONESTY: All suspicions of academic misconduct will be reported to the Academic Integrity Office according to university policy. Academic misconduct is not just blatant cheating (e.g., copying off another student during an exam), but what you might have thought of as "minor cheating" in high school. In particular, academic misconduct includes:

- writing an email that includes fabricated statements.
- completing another student's work or having someone complete your work.
- faking a family emergency or medical condition.
- procuring, providing, or accepting any material that contains questions or answers to any examination or assignment unless student's possession of the material has been authorized by the instructor.
- employing aids in undertaking course work or in completing any exam or assignment that are not authorized by the instructor.

The Policy on Integrity of Scholarship (academicintegrity.ucsd.edu) and this syllabus list some of the standards by which you are expected to complete your academic work, but your good ethical judgment (or asking for advice) is also expected as every behavior that is unethical or not in the spirit of academic integrity cannot be listed here.

Those students found to have committed academic misconduct will face administrative sanctions imposed by their college Dean of Student Affairs and academic sanctions imposed by the instructor. The standard administrative sanctions include: the creation of a disciplinary record (which will be checked by graduate and professional schools); disciplinary probation; and attendance at an Academic Integrity Seminar (at a cost of \$75). Students can also face suspension and dismissal from the University; those sanctions are not at the instructors' discretion. Academic sanctions can range from an F on the exam (i.e., receive zero points for that exam) to an F in the class. The appropriate sanctions are determined by the egregiousness of the Policy violation. Students who assist in or are complicit with cheating could also be in violation of the Policy. Thus, students who become aware of their peers either facilitating academic misconduct or committing it should report their suspicions to an instructor for investigation.

See <http://weber.ucsd.edu/~dkjordan/resources/cheat.html> for additional information.