

## **SYLLABUS for *Neurobiology of Memory*** **Psych 450 Fall 2020**

**TIME & PLACE:** MWF 1:00-1:50pm, Via Zoom

**INSTRUCTOR:** Dr. Benjamin Clark

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**DESCRIPTION:** A survey of the neurobiology of learning and memory, from the molecular to the systems level. Topics include the cellular and molecular bases of learning and memory, model systems of learning and memory, contributions of diencephalic circuitry to explicit memory, and prefrontal cortex and working memory. The final section of the course examines disorders and conditions in which dysfunctions of learning and memory feature prominently, such as normal aging, Alzheimer's disease, and posttraumatic stress disorder.

**TEXTBOOK:** Eichenbaum (2011). *The Cognitive Neuroscience of Memory*. Oxford Univ Press.

**COURSE SCHEDULE:** This schedule of activities is subject to change. Minor changes will be announced in class, major ones provided in writing.

<b><u>Topic</u></b>	<b><u>Readings/Date</u></b>
Introduction	
Nervous System Organization	Ch 1 (Ch. 2, pp. 29-39)
<b><u>1. Connection &amp; Consolidation: Cellular and Molecular Bases of Learning and Memory</u></b>	
Habituation and Sensitization in <i>Aplysia</i>	Ch 2 pp. 29-44
Classical Conditioning in <i>Aplysia</i>	Ch 2 pp. 44-50
Long-Term Memory in <i>Aplysia</i>	Ch 12 pp. 317-319 & 347-349
LTP	Ch 3
LTD	Ch 3
<b>Exam 1</b>	<b>September 18</b>
<b>Workshop 1</b>	
<b><u>2. Cognition and Compartmentalization: Multiple Memory Systems</u></b>	
Declarative Memory and Hippocampus	Ch 4, 6
Declarative Memory and Hippocampus	Ch 5, 9
Motor Learning and Cerebellum	Ch 8, 10 pp. 280-286
Emotional Learning and the Amygdala	Ch 11
Extinction, Amygdala, and Prefrontal Cortex	Ch 11
Working Memory and Prefrontal Cortex	Ch 13
<b>Exam 2</b>	<b>October 30</b>
<b>Workshop 2</b>	

### **3. Dysfunction of Learning and Memory**

Memory and Aging	Assigned articles
Alzheimer's disease	Assigned articles
Stress	Ch. 12, pp. 319-325
Post-Traumatic Stress Disorder	Assigned articles
<b>Exam 3</b>	<b>December 4</b>

<b><u>Holiday Schedule</u></b>	<b><u>Date</u></b>
<b>Labor Day</b>	<b>Sept 7</b>
<b>University Holiday</b>	<b>Oct 7</b>
<b>University Holiday</b>	<b>Nov 4</b>
<b>Thanksgiving Holiday</b>	<b>Nov 26</b>

**EXAMS:** Three examinations will consist of multiple-choice, true-false questions, matching, and short-answer. The exams will include material covered during the preceding topic area. Each exam will be open book and available on Learn, will take place during lecture time, and will be time limited (50min). Each exam will be worth 20% of the final grade.

**WORKSHOPS:** There are 2 in-class “workshops”. For the workshops, the class will be divided into groups. Each group will be given a general question, and the group’s task will be to devise and present experiments relevant to the question. Performance in the workshops will be graded based on attendance/participation. Each workshop is worth 20%.

**GRADING:** Exams = 60%. Workshops = 40%. The grading scale used for this course is as follows: A+ (97+), A (90-96), B+ (87-89), B (80-86), C+ (77-79), C (70-76), D+ (67-69), D (60-66), F (<59)

**ACCOMODATION:** Accessibility Services (Mesa Vista Hall 2021, 277-3506) provides academic support to students who have disabilities. If you think you need alternative accessible formats for undertaking and completing coursework, you should contact this service right away to assure your needs are met in a timely manner. If you need local assistance in contacting Accessibility Services, see the Bachelor and Graduate Programs office.

**ACADEMIC HONESTY:** It is your responsibility to be aware of the UNM student code of conduct, which is available in the Student Handbook (The Pathfinder). As a student pursuing academic credit in this course you should also be familiar with UNM's student grievance procedures which are also described in Pathfinder (<http://pathfinder.unm.edu/index.html>) especially those concerning academic dishonesty. Instances of academic dishonesty (e.g., cheating) will be dealt with according to the procedures described at <http://pathfinder.unm.edu/common/policies/academic-dishonesty.html>. Please be considerate of others and refrain from talking or making excessive noise during lecture. If you have to be asked to refrain from talking more than once during the semester you will be dropped.

**LIBRARY and TUTORIAL SERVICES:** UNM-Main campus provides many library services and some tutorial services for distance students. For library services, go to <http://www.unm.edu/libraries/> to link to a specific library or to contact a librarian. For tutorial

services, go to <http://caps.unm.edu/online> to explore UNM's online services.

**TITLE IX STATEMENT:** In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered “responsible employees” by the Department of Education (see page 15 of <https://www2.ed.gov/about/offices/list/ocr/docs/qa-201404-title-ix.pdf>) requires that any report of gender discrimination that includes sexual harassment, sexual misconduct and sexual violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the Office of Equal Opportunity (<https://oeo.unm.edu>). For more information on the campus policy regarding sexual misconduct, see: <https://policy.unm.edu/university-policies/2000/2740.html>