

Learning & Memory
Psychology 561 (CRN: 16737)
Fall 2013

Arlo Clark-Foos, Ph. D.

Lecture

Location: 1042 CB

Time: TR, 11:00 AM – 12:15 PM

Instructor

Office: 4056 CB

Office Hours: W, 10 - 12p, & By Appointment

Email: acfoos@umich.edu

Teaching Assistant: to be announced

Text (Required): Eichenbaum, H. (2008). *Learning & Memory*. New York: W. W. Norton.

- Traditional Hard Cover Book (New:\$137.50), ISBN : 978-0-393-92447-3
- Other format options (and older editions) may be available online.

Course Website (also on Canvas): <http://www-personal.umd.umich.edu/~acfoos/Courses/461.html>

Course Overview: The course catalog states that this course will include “a consideration of major theories and research results related to learning and memory in humans and animals.” I would like to modify this statement for the current course. While we will certainly consider models of learning in animals (mostly as a precursor to human models), the purpose will be to learn more about human learning and memory. The goal of this course is to understand theories about how human beings learn (encode), store, and retrieve (remember) all of the amazing things we are able to remember. To do this (and to gain historical perspective), we will discuss the research experiments which led to these theories. To wit, it is important that you are able to read and understand psychological research articles and interpret results of experiments as supporting or refuting specific theories.

Although several methods of instruction will be used in this course (including film and journal article discussions), lecture will be the primary means. You will read chapters in Eichenbaum’s (2008) *Learning & Memory* textbook in addition to reading and discussing several primary research articles. In addition to readings and class discussion, you will have several exams and one major research paper.

Course Objectives:

- Understand the scientific approach to the study of thinking, learning, and behavior.
- Understand the abilities and limitations in how organisms acquire information from their environments and bodies (i.e., the information processing perspective).
- Be able to understand and apply current theory, research in, and applications of the scientific study of thinking, learning, and behavior.

Disability Services: The University will make reasonable accommodations for persons with documented disabilities. Students need to register with Disability Resource Services (DRS) every semester they are enrolled for classes. DRS is located in Counseling & Support Services, 2157 UC. To be assured of having services when they are needed, students should register no later than the end of the add/drop deadline of each term.

Academic Integrity: The University of Michigan-Dearborn values academic honesty and integrity. Each student has a responsibility to understand, accept, and comply with the University’s standards of academic conduct as set forth by the Code of Academic Conduct (http://www.umd.umich.edu/policies_st-rights/), as well as policies established by the schools and colleges. Cheating, collusion, misconduct, fabrication, and plagiarism are considered serious offenses. Violations will not be tolerated and may result in penalties up to and including expulsion from the University. Disciplinary action will be taken in cases of plagiarism. At the instructor’s discretion, the penalty may be a grade of zero on the assignment up to and including recommending that the student be expelled from the University. It is the sole responsibility of the student to understand and follow academic guidelines regarding plagiarism.

Attendance

There is no attendance policy in this course. Please keep in mind, however, that all exams are based on a combination of lecture-only, book-only, and lecture and book material.

Psychology Program Goals

This class is designed to teach you content unique to this course (Cognitive psychology) as well as any skills necessary to conduct yourself as a professional in the field. Doing so will allow you to attain the goals we, as psychology faculty, have set out for you as a psychology student.

Knowledge Base of Psychology: Demonstrate a familiarity with the major concepts, theoretical perspectives, empirical findings, and historical trends in psychology.
Research Methods in Psychology: Understand and apply basic research methods in psychology, including research design, data analysis, and interpretation; demonstrate information competence and the ability to use research databases and statistical software packages.
Critical Thinking Skills in Psychology: Respect and use critical and creative thinking, skeptical inquiry, and, when possible, the scientific approach to solve problems related to behavior and mental processes.
Application of Psychology: Understand and apply psychological principles to personal, social, and organization issues; includes personal development.
Ethics and Psychology: Demonstrate ability to weigh evidence, tolerate ambiguity, act ethically, and reflect other values that are the underpinnings of psychology as a discipline.
Writing/Presentation Skills: Demonstrate ability to communicate effectively in a variety of formats.
Cultural and Diversity Awareness: Recognize, understand, and respect the complexity of sociocultural and international diversity.
Career Planning and Development: Emerge from the major with realistic ideas about how to implement psychological knowledge, skills, and values in occupational pursuits in a variety of settings.

Drop/Add

It is your responsibility to be aware of the drop/add dates for this course. The instructor will not grant withdrawal requests made after that date unless extenuating circumstances are presented (i.e., failing due to lack of effort does not qualify).

Late Assignments

The final copy of any assignment is due at the beginning of class. Your grade on that assignment will be penalized 10 points for any day, or part of a day, that it is late.

Make-Up Exams

Make-up exams will *not* be given. The *only* way you may take an exam at another time is with a *preapproved* excuse or a *documented* medical emergency. Should a make-up exam be necessary because of a medical emergency, an alternative (typically essay based) version of the exams will be used.

Religious Observances

If there is an academic requirement stated on this syllabus that conflicts with a religious observance for your faith, you must notify me in writing no later than the end of the add/drop deadline. Upon receipt of your written notification, we can discuss a reasonable accommodation.

University-Sponsored Activities

If your athletic schedule or your schedule for another University-sponsored extracurricular activity will interfere with your participation in this class in any way, please bring me a letter from the director of the relevant program, specifying the reason and the affected dates, no later than the end of the add/drop deadline. Upon receipt of your official written notification, we can discuss a reasonable accommodation.

Submitting assignments to turnitin.com

In order to submit written assignments, you will need to create a turnitin account if you do not have one already. The login website is: http://turnitin.com/login_page.asp. I will check your papers for plagiarism prior to grading. We will follow university policies with regard to academic honesty. The rules are simple: do not take someone else's ideas without giving them credit, do not cut and paste from websites or other sources, and do not use previous papers on similar topics. If you plagiarize, you will receive an E in the course and you will be reported to the CASL Dean's office. If you have any questions about what is and is not plagiarism, please do not hesitate to ask me. Ignorance is not an excuse.

Logging into turnitin.com

Class/section ID: 8563086

Password: learning_umd

Grading

There will be *five* closed-book, closed-note exams. Each exam will be worth 15% of your total grade (150 points each). None of these exams is cumulative, per se, but later models of learning often imply knowledge of previous models. The exams will cover material presented in lectures and in the book but heavily weighted towards lecture. Note that some material will come from both book and lecture, but some will come from lecture only and some will come from book only. I will announce this distribution in class. You will also complete one major research paper on a topic of your choosing (and my approval) worth 25% of your grade (250 points). This paper will be well researched (and cited) and will require submission to Turnitin.com before it will be graded. **NO PAPERS WILL BE GRADED THAT HAVE NOT BEEN SUBMITTED FIRST TO TURNITIN.COM!!** In addition to reading from the textbooks, graduate students will be expected to read the additional resources that are listed in the syllabus for each chapter. Specific readings, indicated by *, may appear on exams.

Exam 1	150 points	15 %
Exam 2	150 points	15 %
Exam 3	150 points	15 %
Exam 4	150 points	15 %
Exam 5	150 points	15 %
Research Paper	250 points	25 %
Total	1000 points	100 %

I will usually round up, for example from 79.5% to 80%, but do not count on it. As a general principle, I will never work harder for your grade than you do. Students who have poor attendance and participation should not expect me to "make up" points for them. Students who have done all that is in their power to do their best can be assured that will be carefully considered in making any borderline decision. I try to apply consistent standards and treat students fairly, as well as fulfill my responsibilities to UMD in making difficult decisions about grades.

UM-D Writing Center

The Writing Center offers support in all stages of the writing and research process. Consultants are not editors, but experienced readers able to offer students guidance on a range of issues relevant to improving their communication effectiveness. Consultants can help students in many ways, including understanding assignment goals; formulating an approach to an assignment; developing confidence for new writing tasks; considering audience, purpose, and context; developing a focus/thesis; articulating and organizing ideas; discussing supporting evidence and whether additional evidence is needed; generating revision strategies; identifying and using appropriate resources; improving control of grammar and mechanics; and becoming more skilled in using APA, MLA, Chicago, and other documentation styles. Let me know how helpful this service is for you.

Drop-in sessions are sometimes available, but it is best to make an appointment. During midterms and finals, consulting sessions are by appointment only.

Contact information for the Writing Center:

Phone: 313-593-5543

Website: http://www.casl.umd.umich.edu/writ_center/

Policies on Incomplete Grades for CASL from the Registration and Records website:

A student whose coursework for the term (other than final examination) is incomplete in a minor way may, upon completion and approval of the I Contract Form, be granted the privilege of completing the work within a four-month period for the College of Arts, Sciences beginning on the first day of classes of the immediately following term. If granted this privilege, a grade of I will be recorded. Failure to complete the required work within the specified time, or the denial of this privilege by the instructor, will result in a grade of E for the final grade. In extenuating circumstances an extension beyond the stated period may be requested by means of a petition that has been endorsed by the instructor and approved by the Academic Standards Committee. However, such arrangements for completing the work must be made within the above stipulated time period. Failure to complete the required work within the specified time will result in a grade of I being automatically treated as an IE and counted in the student's grade point average. The I will remain on the transcript even after the official final grade is assigned

Policies on Incomplete Grades from the CASL website:**I(Incomplete) and X(Missed Final Exam) Guidelines**

It is possible to be granted an *I* (Incomplete) in situations where a student has completed most of the work for a course, but something unforeseen happens near the end of the term which prevents the student from completing the course. The student must consult with the instructor, explain the circumstances, and provide documentation if requested. If the instructor agrees, together the student and the instructor will complete an Incomplete Contract. The completed contract must be turned in by the instructor to CASL Advising (1039 CB) or to Registration and Records (1169 UC).

The *X* mark can be recorded in situations where the final exam is the only thing that is missed. This might occur if illness or some other unforeseen circumstance prevents you from taking your final exam. If this should occur, be sure to contact your instructor immediately. If the instructor agrees, you may make arrangements to take a make-up exam within five weeks. CASL students do not have to complete an Incomplete Contract for courses in which an *X* is recorded.

The deadlines for completion of *I* and *X* marks will be established by the academic unit to which the course belongs, not the unit to which the student belongs. For example, if a COB student is granted an Incomplete in SOC 200, a CASL course, it is the CASL deadline (4 months) that would be the default. Likewise, if a CASL student is granted an Incomplete in a CECS course, it is the CECS deadline (5 weeks) that would be the default.

Courses in which *I* or *X* marks have been recorded must be completed and have final grades officially recorded by their respective deadlines; otherwise, they will automatically be converted to *IE* or *XE* grades and will count in the GPA as failing grades.

Emergency Preparedness

The Provost has made several requests of both students and faculty in order to maintain safety at the University of Michigan Dearborn campus. She is asking that we (you):

- Program 911 into your cell phones.
 - You should also program Public Safety's phone number (313) 593-5333
- Register for the campus Emergency Alert System at: <http://umemergencyalert.umd.umich.edu/>
- Identify a "buddy" in the class to facilitate mutual assistance and to provide rapid and effective assistance to people in case of an emergency
- Know two ways to exit the building and where students are expected to go in the event of an evacuation: http://www.umd.umich.edu/fileadmin/env-health-safety/public/files/Site_Assm_Areas_2011.pdf.
- For those needing assistance in an evacuation, see:
- http://www.umd.umich.edu/fileadmin/env-health-safety/public/files/Handicap_Accessible_Locations.pdf
- Go to the restroom in the event of severe weather. See: <http://www.umd.umich.edu/691921/>
- If someone is shooting a gun, remain as calm as possible; barricade yourself in the room; turn off all lights and devices that emit sounds; hide from sight and remain still and quiet.

Topic Outline / Course Calendar

Module I.

- *Introduction to the Study of Learning & Memory (Ch. 1)*
- *Neural Bases of Learning & Memory (Ch. 2)*

NO CLASS on Thursday, September 11, 2014

Final Topics for Literature Review (September 18th)

Exam 1 (September 23rd)

Module II.

- *Habituation and Sensitization (Ch. 3)*
- *Perceptual Learning (Ch. 4)*

Exam 2 (October 7th)

Module III.

- *Classical Conditioning (Ch. 5)*
- *Instrumental Conditioning (Ch. 6)*
- *Emotional Learning & Memory (Ch. 7)*

First Draft (optional) of Literature Review (October 16th)

Exam 3 (October 30th)

Module IV.

- *Introduction to Conscious Learning & Memory (Ch. 7)*
- *Short-term and Working Memory (Ch. 12)*

Final Draft of Literature Review (November 6th)

Exam 4 (November 11th)

Module V.

- *Episodic Memory (Ch. 9)*
- *Semantic Memory (Ch. 10)*
- *Memory Consolidation (Ch. 11)*
- *TIME PERMITTING: Memory & Aging (Clark-Foos Chapter will be on Canvas)*
- *TIME PERMITTING: Memory Improvement (Clark-Foos Chapter will be on Canvas)*

Thanksgiving Break (No Class): Thursday (11/27)

Exam 5 (December 9th)

This syllabus is a general plan for the course. Deviations to this plan may be necessary and will be announced by the instructor.

References

Exam 1

Bower, G. H. (2000). A brief history of memory research. In E. Tulving & F. I. M. Craik (Eds.), *The Oxford Handbook of Memory* (pp. 3-32). New York: Oxford University Press.

*Crystal, J.D. (2010). Episodic-like memory in animals. *Behavioral Brain Research*, 215, 235-243.

Exam 2

*Cohen, N. J., & Squire, L. R. (1980). Preserved learning and retention of pattern-analyzing skill in amnesia: Dissociation of knowing how and knowing that. *Science*, 210, 207-210.

Cohen, T. E., Kaplan, S. W., Kandel, E. R., & Hawkins, R. D. (1997). A simplified preparation for relating cellular events to behavior: Mechanisms contributing to habituation, dishabituation, and sensitization of the *Aplysia* gill-withdrawal reflex. *The Journal of Neuroscience*, 17, 2886-2899.

Dworkin, B. R., & Dworkin, S., (1990). Learning of physiological responses: I. Habituation, Sensitization, and Classical Conditioning. *Behavioral Neuroscience*, 104, 298-319.

Karni, A., Meyer, G., Jezard, P., Adams, M. M., Turner, R., & Ungerleider, L. G. (1995). Functional MRI evidence for adult motor cortex plasticity during motor skill learning. *Nature*, 377, 155-158.

Karni, A., Tanne, D., Rubenstein, B. S., Askenasy, J. J., & Sagi, D. (1994). Dependence on REM sleep of overnight improvement of a perceptual skill. *Science*, 265, 679-682.

Poldrack, R. A. (2002). Neural systems for perceptual skill learning. *Behavioral and Cognitive Neuroscience Reviews*, 1, 76-83.

Exam 3

Thorndike, E. L. (1898). Animal intelligence: An experimental study of the associative processes in animals. *Psychological Review*, 2, 1-113.

Thorndike, E. L. (1934). Learning without awareness of what is being learned or intent to learn it. *Journal of Experimental Psychology*, 17, 1-19.

*Skinner, B. F. (1953). Operant Behavior. In B. F. Skinner, *Science and human behavior* (pp. 59-90). London: Collier-Macmillan Limited.

Mather, M. (2007). Emotional arousal and memory binding. *Perspectives on Psychological Science*, 2, 33-52.

*Kensinger, E. A. (2009). Remembering the details: Effects of emotion. *Emotion Review*, 1, 99-113.

Exam 4

Baddeley, A. (2000). The episodic buffer: A new component of working memory? *Trends in Cognitive Sciences*, 4, 417-423.

*Baddeley, A.D., & Hitch, G.J. (1974). Working memory. In G. H. Bower (Ed.), *Recent advances in learning and motivation* (Vol. 8, pp. 47-90). New York: Academic Press.

Brown, J. (1958). Some tests of the decay theory of immediate memory. *Quarterly Journal of Experimental Psychology*, 10, 12-21.

Conrad, R. (1964). Acoustic confusions in immediate memory. *British Journal of Psychology*, 55, 75-84.

*Craik, F. I. M., & Lockhart, R. S. (1972). Levels of processing: A framework for memory research. *Journal of Verbal Learning & Verbal Behavior*, 11, 671-684.

Peterson, L., & Peterson, M. J. (1959). Short-term retention of individual verbal items. *Journal of Experimental Psychology*, 58, 193-198.

Keppel, G., & Underwood, B. J. (1962). Proactive inhibition in short-term retention of single items. *Journal of Verbal Learning & Verbal Behavior*, 1, 153-161.

Exam 5

Jennings, J. M., & Jacoby, L. L. (1993). Automatic versus intentional uses of memory: Aging, attention, and control. *Psychology and Aging*, 8, 283-293.

*Mitchell, K. J., & Johnson, M. K. (2009). Source monitoring 15 years later: what have we learned from fMRI about the neural mechanisms of source memory? *Psychological Bulletin*, 135, 638-677.

Nyberg, L., Sandblom, J., Jones, S., Stigsdotter Neely, A., Magnus Petersson, K., Ingvar, M., & Bäckman, L. (2003). Neural correlates of training-related memory improvement in adulthood and aging. *Proceedings of the National Academy of Sciences of the United States of America*, 100, 13728-13733.

*Salthouse, T. A. (2003). Memory aging from 18 to 80. *Alzheimer Disease & Associated Disorders*, 17, 162-167.

Smith, M. A., Riby, L. M., van Eekelen, J. A. M., & Foster, J. K. (2011). Glucose enhancement of human memory: A comparative research review of the glucose memory facilitation effect. *Neuroscience and Biobehavioral Reviews*, 35, 770-783.

Verhåghen, P., Marcoen, A., & Goossens, L. (1993). Facts and fiction about memory aging: A quantitative integration of research findings. *Journal of Gerontology*, 48, 157-171.

Learning & Memory (PSYC 561) Research Proposal

Assignment: You will complete a thorough research proposal on a topic of your choosing. Your topic can be on anything related to human (or animal) learning and memory, including research on artificial intelligence. All topics must be approved or the resulting papers will not be graded. To facilitate the approval process, each of you will submit at least 10 possible topics that interest you and I will attempt to refine your list to the most appropriate and most fruitful topics for this paper. The goal is to select a topic that interests you and then to conduct library and online research to learn as much about the topic as possible. You will then communicate your findings back to me through your written literature review. As should be intuitive, a literature review should attempt to synthesize all (relevant) published research related to a given topic (i.e., it reviews the literature). To wit, literature reviews most often culminate with a tentative research proposal for a new study to be conducted on the topic. As such, it is best to begin your research with a specific question about human behavior that might be answered through a new study. For example, how do humans use memory for prior experiences when interpreting complex visual stimuli (i.e., how does our past help us figure out what we are looking at now?).

Completing this assignment will require you to use numerous research journals (both empirical and review) and possibly your textbook. Utmost care should be taken to avoid plagiarism (i.e., if it was not your original insight or language, cite the original). That being said, this paper is to be written by you, the student, and not by the authors of your sources. Quotations are not allowed on this assignment except in rare, pre-approved, circumstances.. Part of your college education and requirement for this assignment is to be able to synthesize and summarize others' work in your own words while still giving credit where it is deserved.

In addition to reviewing the literature on a given topic, this paper should propose a direction for new research. While I do not require a specific methods section that lists every possible methodological detail (e.g., number of stimuli, time watching a video) I do require enough methodology to properly evaluate the proposal. If in doubt, please ask for assistance.

Abstracts *are required* for the written assignment.

In addition to submitting a written research proposal, you will be asked to deliver a 15 minute presentation of your research to your professor and any other graduate students enrolled in the course. Time and location of the presentation will be determined.

Diabolus in singulis est (*The Devil is in the Details*):

- APA 6th ed., 12pt Times New Roman, Double Spaced, 1" margins
- 12-15 pages, not counting references or title page
- Minimum of 12 cited sources (at least 8 must be empirical articles, no website-only sources)
- Topic must be approved by September 18th.
- Final draft of your paper must be turned in by the start of class on November 6th.
- Any students wishing to receive advanced feedback on their paper must turn in a draft no later than October 16th.

Choosing a Topic

In order to start writing this paper you will need to seek approval for a topic related to this course. This can be a very broad and even stretched relationship but it must still be there for you to write about it in this class. When searching for a topic it may help to browse the contents of the textbook, syllabus, course website, and future lectures. Ask yourself what questions you might have about the various topics we will cover in the class. Think about what interests you most (why did you take this class...it is not a requirement for anything and there are probably easier cognates!) as that will make this the best paper for you to write and for me to read. Come up with 10 possible questions that interest you and I will help to guide you in the best direction in terms of available research and depth of topic. Good luck!

Literature Review Grading Rubric

	Rating				Score
	Excellent	Good	Fair	Poor	
ASSIGNMENT STRUCTURE (75 points)					
Quantity and Quality of Articles	Information is gathered from multiple (12), research-based (8) sources.	Information is gathered from multiple sources.	Information is gathered from a limited number of sources.	Information is gathered from a single source.	/15
Length	Adheres to 12-15 page criteria.	Unnecessarily exceeds or does not meet page criteria by a page.	Unnecessarily exceeds or does not meet page criteria by more than 1 page.	Unnecessarily exceeds or does not meet page criteria by multiple pages.	/15
Format	Font, spacing, and APA format are correct.	Font and spacing, font and APA, or spacing and APA are correct.	Font, spacing, or APA format is correct.	Font, spacing, and APAP format are incorrect.	/15
Grammar	There is 1 or less grammatical error.	There are 2 grammatical errors.	There are 3 grammatical errors.	There are 4 or more grammatical errors.	/15
Reference Sheet	Information is cited properly and in APA format.	Information is cited, but has a few small errors.	Information is cited, but has multiple errors.	Information is not cited at all or is completely incorrect.	/15
LITERATURE REVIEW CONTENT (175 points)					
Theme/Research Problem	The topic is introduced and the groundwork is laid as to the direction of the report.	Readers are aware of the problem, challenge, or topic that is to be examined	Readers are vaguely aware of the overall problem but not much detail is given.	Neither implicit nor explicit reference is made to the topic that is to be examined.	/30
Flow/Structure	Well organized, demonstrates logical sequencing and structure.	Well organized, but demonstrates illogical sequencing or structure.	Weakly organized with no logical sequencing or structure.	No organization, sequencing, or structure.	/25
Background/Foundation	Thorough (theoretical and empirical) review of existing research findings.	Adequate coverage of existing literature with some attention to theory and data.	Fair review of some findings (perhaps not empirical) with some attention to theory or data.	Existing research is sparsely covered with little attempt to explain theory or data	/70
Research Questions and Conclusions	Conclusion(s) are well formed through the literature review and clearly stated. Research question(s) may be posed.	Conclusions(s) are formed through the literature review.	Conclusion(s) were not formed, roughly formed, or unclearly stated (but could have been formed through the literature review).	No conclusions are apparent from the literature review.	/25
Proposed Methodology	Methods reflect logical theoretical design and proposal would fill a gap in the literature.	Methods somewhat reflect theory and/or may have some minor novelty (i.e., has not been done before).	Unclear how methods could be used to examine research question or fit in with existing literature.	Methods are very poor, illogical, and/or not related to your paper. May also apply to mere replications with no novelty.	/25
MISCELLANEOUS	Late papers will be penalized 10 points for any day, or part of a day, that it is late. Did you cheat or plagiarize?				
TOTAL POINTS					/ 250