

Learning & Memory

Professor Stephen Flusberg

Monday/Thursday 2:30 - 4:00 PM
Natural Sciences Building, Room 1001

"Memory is the treasury and guardian of all things" - Cicero

Welcome to Learning & Memory. The theater critic John Lehr once said, "Identity is memory; when memory disappears, the self dissolves and love with it." Indeed, other than that which is genetically coded, everything we know and everything we can do reflects a lifetime of learning and a memory for our past. This course provides an introduction to the science of learning and memory. We will consider the cognitive and neural organization of memory, mechanisms of learning, remembering, and forgetting, and the nature of false memories. Psychological theory and behavioral evidence will be integrated with data from patient studies and neuroscience.

Course Objectives

- Understand how different kinds of memories are acquired and organized in the brain
- Learn how, when, and why memory can fail us (forgetting, false memory, amnesia, etc.)
- Understand a variety of different learning processes and how (and why) they work
- Discover how the principles of learning and memory help us understand clinical disorders like phobias and addiction
- Learn a fun and interesting new skill (that will impress people at parties)
- Develop the ability to critically evaluate the science depicted in popular film or media
- Learn how to apply the scientific principles of learning and memory in your own life (for example to improve your studying habits)

Instructor Contact Information

Dr. Stephen Flusberg
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Office Hours

Mondays: 10:30 AM – 12:00 PM
Wednesdays: 10:30 AM – 12:00 PM
Room NS 2045

Learning Assistant Contact Information

Lia Monteleone
lia.monteleone@purchase.edu

Office Hours

Thursdays: 1:00 – 2:00 PM
1st floor lounge, Nat Sci Building

No appointment is necessary to attend any office hours. If you contact us, we will do my best to get back to you within a 24-hour period, but we will not typically respond to emails after 10:00 PM.

Course Overview

This is a lower-level psychology course consisting of the following required elements:

1. Lectures

Attendance for the full class period is required; if you cannot arrive by 2:30 and stay until 4:00, I would ask that you drop the course. I will post the slides on Moodle after class, but they will be difficult to understand if you're not in class. Laptops and similar technology are permitted during lecture for note-taking purposes only (although some research suggests that taking notes by hand may result in better memory for lecture material). Please exercise common courtesy to your instructor and fellow classmates by avoiding the use of distracting applications during class, such as email, web browsing, chat programs, etc. Also, please pretend you are on an airplane and keep your phone off at all times (unless it is an emergency).

2. Readings

The readings for this course are designed to *complement* the lecture material, and to stimulate your thinking about the science of psychology. I will lecture on some material that is not covered in the readings (and vice versa). For most class periods you will be responsible for reading one or two articles or book chapters. You must do all of the reading for this course, and I recommend doing the assigned reading *before* coming to class (as you will learn, scientific research suggests this will help you understand and remember the material!). All of the readings will be available for download on the course Moodle in PDF format or hyperlinked text. You should take notes when you read, summarizing the claims and arguments of the author(s) in your own words. Please note that merely passively reading and highlighting is unlikely to result in deep understanding and memory for what you have read! Some of the readings will be more difficult than others, so make sure you give yourself enough time to complete them and please come to office hours if you have any questions.

3. Online Quizzes (to be completed at home)

Throughout the semester you will complete 7 online quizzes through Moodle. As you will soon discover, people learn more effectively when they space out their study sessions and when they are *tested* on material, so having multiple opportunities to review and be quizzed on the material will actually help you to learn all of the information in the course. Each quiz will primarily cover the course material we have covered since the last quiz, but since many of the concepts covered in class are interrelated, the later quizzes will include ideas covered earlier in the course as well. Quizzes will largely consist of multiple-choice questions and will be open to complete 24 hours before they are due (which will generally be on Sundays or Wednesdays at 10:00 PM). Once you have started a quiz, you will have as much time as you like to complete it, and you may draw on all of your notes and readings. However, you can only take each quiz one time, and once the deadline has passed you will not be able to take it all (no make-ups). Please complete each quiz by yourself!

4. In Class Exams

There will be 4 in-class exams in this course (this includes the final). I strongly advise against cramming for these tests! Exams will consist primarily of short answer questions, though there may be other question types as well. Like the quizzes, exams will focus primarily on material covered since the previous exam, but with some cumulative questions as well in each one. The 4th exam (the final) will be fully integrative and cumulative.

With a large class, it is difficult for us to grade and return the exams quickly, but research shows that immediate feedback can be very helpful in fostering comprehension and learning. Therefore, you will be given 60 minutes to complete each exam in class. Once everyone has turned in their exams, the remaining 30 minutes of class-time will be used to go over the questions and answers as a group to make sure that everyone in the class understands each one thoroughly. For those students who require special testing accommodations, there are two options: you can either arrange to take the exam *before* it is given in class and then rejoin the class for the final 30 minutes, or else you may schedule a meeting with one of us to discuss the exam answers at another time.

You may drop your lowest exam score, but you have to take at least 3 exams. Students **MUST** take the exams as scheduled. Make-up exams will not be given as a rule, especially since we will review the answers that day. A missed exam score will constitute your lowest exam score and will be dropped. However, it is always advisable to have written documentation of any emergencies in the event that you miss more than one exam due to unavoidable circumstances.

5. The Learning Project

All of the knowledge and skills we possess reflect a history of learning and practice. One way to understand this process is to take a class on learning and memory and study it from an academic perspective (which you are doing right now. Nice job!). Another way to understand this process is to simply do it yourself (which you have done throughout your life). The best approach is to combine these two modes of understanding, and that is the goal of The Learning Project.

Your assignment is to learn a new skill. Something you have always wanted to know how to do (but can't do right now). Something to impress your friends or a stranger at a party. Something that you can demonstrate in front of a crowd in 3 minutes or less. Skill learning will be one of the specific topics that we cover in the course, and it actually brings together many of the different components of learning and memory that we will be reviewing. Therefore, I think that this project will really help bring the content of the course to life. There are 4 components to this project:

1. **Proposal:** At the end of the third week of the semester (Friday, September 18th @ 10:00 PM) you will submit in a 1-page proposal for what skill or technique you plan on learning. The proposal should include a description of the skill, your current level of proficiency, and a plan for how you will develop it over the course of the semester. You should budget at least 1 hour per week of practice time, though some skills may require more or less time (this will fulfill your out of class seat time requirement). The proposal is worth 4% of your final grade in the course.

2. **Practice & Progress Reports:** Throughout the semester, you must practice your skill each week and submit two (2) one-to-two-paragraph progress reports detailing (a) how your skill learning is progressing (your current skill level), (b) whether or not you have stuck to your original plan, and (c) what your plan is for the rest of the semester. The progress reports are each worth 2% of your final grade in the course (4% total). Each report is due at 10:00 PM on the date indicated on the course schedule.
3. **Presentation:** At the end of the semester, every student in the class will give a 3-minute presentation to the whole class demonstrating their skill. The presentation is worth 7% of your final grade in the course. Presentations will take place December 3rd and 7th in class.
4. **Paper:** At the end of the last week of class you will submit an 800-1000 word paper describing the entire process of learning your new skill, drawing on the academic knowledge you have acquired throughout the course and on your first hand experience. What studies or theories discussed in class and in the textbook help explain how you learned what you did or what experiences you encountered? What difficulties or challenges did you overcome? It may be helpful to record your experiences each week during the course (e.g. for each week, how many minutes did you practice? Did you see noticeable improvements during that week or not? Rate yourself on your skill level each week, etc.) The paper is worth 10% of your final grade in the course and is due Friday, December 11th at 10:00 PM.

Additional details about the project and each of these components will be discussed in class, including sample skills you might choose to learn. All written components will be submitted via Moodle, and this project will be worth 25% of your final grade. Late assignments will be marked down 10% per day late. Finally, if there is enough pressure from the class, I will learn a new skill too!

6. Memento Group Activity & Discussion

Many Hollywood and television depictions of amnesia (memory loss) are inaccurate and misleading. However, the film *Memento*, written and directed by Christopher Nolan (of *Batman* and *Inception* fame), is one of the more realistic representations of this serious condition (not to mention it's a fantastic psychological thriller!) We will watch the movie in class on Monday, November 9th. If for some reason you cannot make it to class that day, please provide me with appropriate documentation and I will arrange an alternative viewing time.

On Thursday, November 12th we will have a group activity and class discussion addressing the film's portrayal of memory. In preparation for class that day, you should come with notes addressing the following questions: What did the film get right about memory? What did the film get wrong about memory? What studies can you cite to back up your claims? This will provide you with an opportunity to think actively and independently about the nature of memory, as revealed through the scientific research we have been learning about. Attendance will be taken that day. On Friday, November 13th, you will submit a brief (1-2 paragraph) response paper to Moodle with your final thoughts about the film and our discussion as they pertain to themes and ideas from the course. This will be worth 5% towards your final grade.

Grading

	Points	% Total Grade
7 Online Quizzes	70	10 %
Exam 1	140	20 %
Exam 2	140	20 %
Exam 3	140	20 %
The Learning Project	175	25 %
Memento Response Paper	35	5%
TOTAL	700	100%

Note: There are 4 total Exams in this course including the final. You will drop your lowest exam score

Grading in this course will adhere to the Purchase policy on cheating and plagiarism. This policy explicitly prohibits cheating, plagiarism and other forms of academic dishonesty. Plagiarism is the appropriation or imitation of the language, ideas, and/or thoughts of another person and the representation of them as one's own original work. Students are responsible for familiarizing themselves with the definition of plagiarism and the acceptable methods of attribution. Plagiarism will earn you an immediate F in the course. Please refer to the college website for information on this policy: <http://www.purchase.edu/policies/plagiarism.asp>.

Academic Accommodations

Students with documented physical, learning, psychological, and other disabilities are entitled to receive reasonable accommodations. If you need classroom or testing accommodations, please contact the Office of Special Services (Student Services third floor; 251-6035) or the Counseling Center (Module 1 on Lincoln Ave., 251-6390). I encourage students with disabilities to let me know as soon as possible during the semester what, if any, special accommodations will be needed. After-the-fact accommodations will not be possible. For more information go to: <http://www.purchase.edu/studaff/specialstudentservices>

NSS Fall 2015 Lecture Series

This fall the School of Natural and Social Sciences has a wonderful lineup of speakers. I strongly recommend you attend these talks, which always take place on Tuesdays @ 7:00 PM in NS1001

Tuesday, October 6th @ 7:00 PM

Dr. John Howard

Professor Emeritus of Sociology, Purchase College, SUNY

The 10th Annual John Howard Lecture on Law & Justice

In The Name of Justice: The Chamberlain Case and Police Shootings in Westchester

Tuesday, November 10th @ 7:00 PM

Dr. Carl Safine (Purchase College Alum)

Chair for Nature and Humanity, Stony Brook University, SUNY

Beyond Words: What Animals Think and Feel

Tuesday, December 1st @ 7pm

Dr. Omowunmi Sadik

Professor of Bioanalytical and Environmental Chemistry, Binghamton University, SUNY

Can your iPhone Tell you What's in your Food? - Nanosensors for Rapid Detection of Food Pathogens

Course Schedule

The most up-to-date schedule of topics and assignments will always be posted on the Moodle calendar, as this schedule might change a bit as we move through the semester. All changes will be reflected on the calendar and important communications will be sent via Moodle announcements (which are permanently archived on Moodle so that you can access past messages at any moment).

		DATE	TOPIC	READINGS	DEADLINES
Week 1	M	31-Aug	Introduction		
	Th	3-Sep	How to do better in school	Dunlosky 2013 Willingham 2008 Reiner & Willingham 2010	
Week 2	M	7-Sep	LABOR DAY - NO CLASS		
	Th	10-Sep	A quick tour of the brain	Myers Chapter 2	Quiz 1 due Sunday, Sept 13 @ 10 PM
Week 3	M	14-Sep	TBA		
	Th	17-Sep	How to learn a new skill	Jarvis Chapter 8 Ericsson et al 2007	LP Proposal due Friday, Sept 18 @ 10 PM
Week 4	M	21-Sep	Habituation & sensitization	Gluck et al Ch 6 (pp 205-220)	Quiz 2 due Weds, Sept 23 @ 10 PM
	Th	24-Sep	Perception, priming, & statistics	Gluck et al Ch 6 (pp 220-223)	
Week 5	M	28-Sep	EXAM 1		
	Th	1-Oct	Of dogs and bells	Lieberman excerpt (pp 48-85)	
Week 6	M	5-Oct	More classical conditioning	Lieberman excerpt (pp 85-105)	Quiz 3 due Weds, Oct 6 @ 10 PM
	Th	8-Oct	Opening Skinner's box	Schacter et al excerpt	
Week 7	M	12-Oct	How to train your pet	Optional: Pryor 1999 ch 1 & 2	Quiz 4 due Weds, Oct 15 @ 10 PM
	Th	15-Oct	Monkey see monkey do?	Gluck et al Chap 11 excerpt	LP Progress Report 1 due Sun, Oct 18 @ 10 PM

Week 8	M	19-Oct	EXAM 2		
	Th	22-Oct	Temporary storage	Goldstein: Chapter 5	
Week 9	M	26-Oct	Working memory	Goldstein: Chapter 5	Quiz 5 due Weds, Oct 28 @ 10 PM
	Th	29-Oct	Remembrance of things past	Smith & Kosslyn Ch 5 excerpt	
Week 10	M	2-Nov	Semantic memory	Baddeley Chapter 7	
	Th	5-Nov	When memory fails	Schacter et al excerpt Loftus 1997	Quiz 6 due Sun, Nov 8 @ 10 PM
Week 11	M	9-Nov	Memory in Film: Memento		LP Progress Report 2 due Weds, Nov 11 @ 10 PM
	Th	12-Nov	Memory in Film: Discussion		Memento Response Paper due Fri, Nov 13 @ 10 PM
Week 12	M	16-Nov	EXAM 3		
	Th	19-Nov	Supermemory	Rolls 2010: S Foer 2011	
Week 13	M	23-Nov	Memory across the lifespan	Eacott 1999 Aging & Memory Chapter	
	Th	26-Nov	THANKSGIVING - NO CLASS		
Week 14	M	30-Nov	Additional phenomena	TBA	Quiz 7 due Weds, Dec 2 @ 10 PM
	Th	3-Dec	Learning Project Presentations I		
Week 15	M	7-Dec	Learning Project Presentations II		
	Th	10-Dec	The Year in Review		Learning Project Paper due Fri, Dec 11 @ 10 PM
Week 16	M	14-Dec	EXAM 4	(3:00-5:30 PM)	