PSYC 51.09: Human Memory

Winter 2024 (Timeslot 10: MWF 10:10 AM — 11:15 AM)

Instructor: Dr. Jeremy R. Manning
Instructor Email: jeremy@dartmouth.edu
Classroom: Moore Hall, Room 110

Office Hours: By appointment
X-hour: Th 12:15 — 1:05 PM

Course Description

Knowing how our brains organize and spontaneously retrieve memories is at the heart of understanding the basis of the ongoing internal dialog of our conscious thoughts. Put simply, our memories make us *who we are*. The field of human memory also has a practical side. For example, how much should we trust eyewitness testimony? Or, should you cram for tomorrow's exam or get a good night's sleep instead? We will examine a range of classic and cutting-edge experimental results and theories that form the foundation of our current understanding of how we learn and remember.

Course Goals

First, I want you to leave this course with a solid grounding in our current understanding of how we learn and remember. You will learn to critically evaluate theories that describe how memory works, and you will learn to build your own theories.

Second, I want you to be able to apply what you learn in my course in your everyday life. We'll consider "brain hacks" for improving your memory and learn how (and why) memory can fail (e.g. Alzheimer's disease, amnesia, post-traumatic stress disorder, etc.).

Pre-Requisites

Some experience with Psychology or Neuroscience (AP Psychology, PSYC 1, and/or PSYC 6) will help to ground the materials covered in this course. If you haven't taken any of the pre-requisite courses, please reach out to me to see if the course is appropriate for you. All other concepts will be covered in the readings and course lectures.

An important part of studying memory is building formal (mathematical) models of what happens when we learn and remember. As long as you have had some training basic high school-level math (e.g., algebra, basic trigonometric functions), you will be able to follow along. Each year the class includes some students who are very comfortable with math, and others who are less so. Wherever you fall on that spectrum is OK!

Course Materials

You will need a copy of the course textbook: *Foundations of Human Memory*, by Michael J. Kahana (Oxford University Press). It is available on Amazon.com or via other sources.

I will also occasionally upload supplemental readings to the course's Canvas site. These readings will be made available as freely downloadable PDFs to all students taking the course.

If obtaining these course materials presents a financial hardship for you, please reach out to me privately and we will figure something out.

Format

The textbook and supplemental readings will provide most of the background and theoretical grounding for the course. In my lectures I will be developing and expanding on the material from the readings. The lectures are also where you'll learn about real-world examples and useful brain hacks.

Most of my lectures will be slide-based; .pdf and .key versions of all slides may be found on the course GitHub page. PDFs may be viewed with any document viewer (Acrobat, Preview, etc.), and KEY files may be viewed using Keynote (requires either a Mac or an iCloud account, which you can create for free).

GitHub

All course materials (aside from the textbook) will be made available on the course's GitHub page. You can use the GitHub page like any other website; just think of it as a way of organizing all of the course materials (you don't need a GitHub account to access the page). Materials posted to the GitHub page will include:

- Assignments and exams, including copies of assignments from previous years
- Recordings of course lectures from prior offerings of the course
- Lecture slides
- Supplemental readings and materials

Grading

Each assignment will be worth some (maximum) number of points. Your final grade will be based on the percentage of points you earn across all assignments, rounded to the nearest whole number. A letter grade will be assigned as follows (numbers in parentheses denote the percentages of total possible points earned): A (95–100); A- (90–94); B+ (87–89); B (83–86); B- (80–82); C+ (74–79); C (57–73); C- (50–56); D+ (44–49); D (37–43); D- (30–36); or F (0–29). I have tried to design this course so that you will do well if you put in a consistent moderate level of effort throughout the term. Putting in a consistent effort is the best way to learn this material well. (In this course you'll learn why!)

Problem sets (6 points)

A total of 7 short take-home problem sets will be distributed over the course of the term (approximately 1 per week, except for the weeks of the midterm exam and final project). These problem sets will help to solidify the concepts we learn about in the lectures and readings. One or more ungraded (optional) questions on each problem set will also ask you to provide your candid

thoughts on that week's reading assignment and to suggest potential exam questions based on the material. Those ungraded questions may provide opportunities for extra credit.

Each problem set will be graded on a credit/no-credit basis (handing in the complete problem set with all required questions answered by the due date will earn you 1 point; failing to turn in the complete problem set by the due date will earn 0 points for that problem set).

After first attempting each problem, on each problem set, entirely on your own, you may (and are encouraged to) work together in small groups on these problem sets, consult ChatGPT or other external sources, and so on. You are also encouraged to post and answer questions on the course's Canvas site, or to bring up related topics for discussion in class. However, you must write up and hand in your own work (i.e., re-phrase in your own words, show how you arrived at the answer, and so on, rather than copying and pasting your answer). Problem sets will usually be posted to Canvas prior to the first class meetings of the given week, and will usually be due at the start of class 1 week from the posted date. **Problem sets should be submitted electronically on Canvas *prior* to the start of class when they are due. *No late problem sets will be accepted.***

The final problem set (Problem Set 7) will be optional— students may turn in Problem Set 7 to "make up for" a missing problem set. (If the first 6 problem sets are turned in on time, problem set 7 will not be graded.)

You will likely find that some of the problem sets require quite a lot of effort just for 1 point. In designing my problem set grading policy, I attempted to balance several factors. First, I want you to get at least some credit for putting in a consistent effort. That's why problem sets are worth *something*, and also why I require problem sets to be handed in on time. Second, I want to give you a "safe environment" for making mistakes. That's why the specific content of your answers won't affect your grade. And third, I realize that "life" can sometimes get in the way of our best intentions. That's why you get a make-up opportunity through an "extra" problem set, and also why each individual problem set won't have much impact on your final grade in the course.

Midterm exam (20 points)

The take-home midterm exam will be designed to test and build on your understanding the fundamental concepts we discuss in class. The exam questions will be similar to those covered in the problem sets, and will cover material learned in all lectures preceding the exam. The best way that you can prepare for the midterm exam is to do the problem sets each week. If you would like additional practice, I encourage you to do problem sets from previous years as well.

Final exam (25 points)

The take-home final exam will be designed to test and build on your understanding the fundamental concepts we discuss in class. The exam questions will be similar to those covered in the problem sets, and will cover material learned in all lectures throughout the course. The best way that you can prepare for the final exam is to do the problem sets each week, and to make sure that you understood all of the material covered on the midterm exam. If you would like additional practice, I encourage you to do problem sets from previous years as well.

The Academic Honor Principle

I expect you to abide by Dartmouth's Academic Honor Principle at all times. For example, while I encourage you to discuss your assignments with your classmates, **any work you hand in should be your own**. In other words, you can work together and ask for help, but you cannot simply copy someone else's (including ChatGPT's, etc.) answers.

Collaboration with other students and use of AI tools like ChatGPT will be allowed on problem sets, where the goal is simply to help you learn the material. It is up to you to verify accuracy, ask questions, and to determine your own learning needs.

On take-home exams (the midterm and final), you may *not* collaborate or use ChatGPT or other AI tools. The exams are intended to check your knowledge, provide an incentive to retrieve learned material from your memory, and extrapolate from what you have learned. Copying and pasting from another source will not accomplish these goals.

Violations of the Principle will not be tolerated, and if you become aware of any such violations you are honor bound to take action. If you have any questions about the Academic Honor Principle and how it applies to this course, please ask.

Scheduling Conflicts

This class works best when students are participating synchronously. When you are able, I hope you will benefit from attending and being on time for every class meeting. However, I also understand that your personal circumstances (e.g., illness, health concerns, religious observances, other commitments, emergencies, etc.) may limit your ability to participate synchronously at times.

If you are generally not able to attend the synchronous course meetings, please reach out to me as soon as possible (and before the end of Week 2 at the latest) so that we can figure out a plan that will help you to get as much as you can out of the course.

Importantly, however, **no part of your grade will depend on attendance**. I trust that you will make the best decision for yourself, based on your personal goals and circumstances, about whether or not to attend each class meeting. By the same token, **if you do miss a class meeting, it is your responsibility to make up the material by watching the lecture recordings (available on the class GitHub page), turning in any required assignments on time, and so on.**

If you are sick, please do not come to class! Take the time to rest, recover, and avoid spreading it to your classmates. Once you are feeling better we can get you caught up again. Email me and/or sign up for my office hours if you would like my help.

Student Needs

I strive to maintain a welcoming and accessible learning environment. I want you to be an active participant and contributor to ongoing discussions and activities, and that means that every student should feel comfortable engaging with the material. **If you would like me to be aware of any issues that arise during the term, or any personal needs that may require adjusting how I run my class or how you participate, please let me know!** Dartmouth's Student Accessibility Services Office can also help assist with setting up disability-related accommodations.