

Learning & Memory (PSY 2250)

Spring 2020

INSTRUCTOR:	Aaron Roberts, M.S. Rehabilitation Counseling
CONTACT INFO:	Please contact me first through the Canvas email system. Other options include my work email: aaronroberts@weber.edu or my office phone: 801-626-7048. My office is located in the Student Services Center building, room 230 (in Career Services).
COMPUTER ISSUES:	For computer or Canvas related issues, please contact WSU Online during business hours: 801-626-6499. For general technical issues, please contact the Help Desk: 801-626-777 (available 24/7).
FOR APPOINTMENTS:	To make an appointment with me, log into "Wildcat Handshake" under your eWeber portal. Select "Career Center" -> "Appointments" -> "Schedule an Appointment." If you have questions, you may contact my office: 801-626-6393.
COURSE SCHEDULE:	Tuesday & Thursday, 12:30 – 1:45 pm, Lindquist Hall, rm: 114
REQUIRED TEXT:	Gluck, M., Mercado, E., & Myers, C. (3 rd Edition) <i>Learning and Memory: From Brain to Behavior</i> . NY: Worth Publishers
COURSE WEBSITE:	https://weber.instructure.com/login/

COURSE OBJECTIVES

1. To give the student a broad overview of biological, psychological, and philosophical principles relevant to learning and memory.
2. Describe the basic processes involved in acquisition, retention, and expression of new and existing behaviors.
3. Understand major research results related to learning and memory in human and animal studies.
4. Explain how the brain and nervous system receives, transmits, and processes information.
5. Ability to identify and apply principles of learning and memory to academic, personal, and vocational goals.

COURSE REQUIREMENTS

Exams (42%)

There is a total of 3 exams throughout the semester. The exams will include material from chapter readings, lectures and slides. The exams only consist of material since the last exam, therefore, NOT cumulative. The exams contain 50 multiple choice and fill-in-the-blank questions. These exams will be through Chi Tester, which is administered through WSU's Testing Center. To make an appointment, visit the testing center's website here: <http://www.weber.edu/testingcenter>. You must **bring a valid ID** (student ID or driver's license) to take the exam. If you will be out of town, you may be able to take the exam earlier than the assigned date.

Quizzes (37%)

There will be short in-class quizzes. Don't let this intimidate you. You will be tested on the material, but you will be able to discuss answers with classmates and self-grade your own quiz. Receiving feedback from peers and allowing students to self-grade their own quiz has been correlated with improved course performance (Dochy, Segers, & Sluijsmans, 1999). Additionally, research has suggested frequent "testing" may improve performance and achievement as well (Pennebaker, Gosling, & Ferrel, 2013). You will do well if you attend class and participate as we discuss the quiz. The quiz questions are relevant to the exam questions, so in addition, it will be preparing you for the exams too. The quizzes will be given in the first 10 minutes of class and worth 5 points each. Each quiz will test your knowledge from your assigned chapter reading that week. I will drop your 3 lowest quizzes.

Short Papers (17%)

There will be 3 short papers throughout the semester. These papers will be submitted through Canvas. These papers will be graded on described assignment guidelines below, but also on grammar and punctuation. These papers should be double-spaced with 1-inch margins ("normal" setting in MS Word).

Paper 1: TED Talk or ScienceDaily Article (20 points)

Identify a TED Talk (www.ted.com/talks) OR ScienceDaily article (<https://www.sciencedaily.com/>) that is related to learning and memory. Write a 2-page double-spaced paper a) summarizing the content, b) describing the learning and/or memory concept involved, and c) how it applies to you.

Paper 2: Everyday Activity (20 points)

Identify activities you engage in regularly that you would like to improve. Think of how your engagement in class, specific study habits, work life, extracurriculars, or athletic ability may be enhanced by the way you apply learning and memory principles we've discussed. For this paper, a) Identify and describe the activity / activities, b) describe the principles you wish to apply, and c) what you expect to achieve. This paper follows the same guidelines noted above (2 pages, double-spaced).

Paper 3: Spaced Practice (20 points)

In class (and in the textbook) we discuss massed vs spaced practice. Take this principle and write about how you *could* use spaced practice in your daily life. How might you be able to rearrange your daily, weekly or monthly schedule to allow spaced practice? Think of the classes you are taking, the concepts you are learning, or the activities you engage in, and how spaced practice might enhance your skills, combat procrastination, and help you to complete tasks. For this paper a) identify any activity (e.g., studying, sports, etc.), b) describe how you can use spaced practice to enhance this activity, and c) how you could alter / modify or change your schedule to allow spaced practice. This paper will be 2 pages, double-spaced.

Learning and Memory Presentation – 20 points (5%)

Based on the 3rd paper, present to the class for 5 minutes about what you plan to or have done to make any normal activity you engage in more effective. This includes your study habits, tasks at work, sports, or other extracurricular activities that may be enhanced by applying principles of learning and memory. You may create a short PowerPoint, Prezi, or use another form of technology for presenting to classmates.

Extra Credit – 10 Points (3%):

Spaced practice, giving effortful attention, and eliminating distraction are all concepts aimed to enhance learning and skill acquisition. The Pomodoro Technique leverages these concepts. For extra credit, practice the Pomodoro Technique and reflect on how this experience was for you. If you don't have a kitchen timer, you may use a timer on your phone (or a phone app). For each 25-minute study session, take a 5-minute break in-between (and do nothing). Did you find it difficult/frustrating? Effective? Could you eliminate all distractions? Did you find it helpful to your studying? Write a 1-2 page paper on your experience (double-spaced, 1-inch margins).

All Assignments/Quizzes/Exams	Total Points	Total Percentage (rounded)	Submitted
3 Exams (50 points each)	150 points	40%	Chi Tester
26 Quizzes (5 points each)	130 points	37%	In-class
3 Papers (20 points each)	60 points	13%	Canvas
Learning & Memory Presentation	20 points	6%	In-class
Total:	350 points	100%	-
Extra Credit	10 points	+3%	Canvas

SUCCESS IN THIS CLASS

Read textbook before class. You will be quizzed on the chapter readings from your textbook at the beginning of class. This allows me to give you immediate feedback. Research has shown that students who receive immediate (quality) feedback may produce faster learning and greater achievement than just receiving classroom instruction alone (Anderson, Corbett, Koedinger, & Pelletier, 1995). In fact, even when learning drops, quality feedback may lead to a new burst of learning (Singley & Anderson, 1989). Therefore, it is important to read through the textbook material before class so you are ready to take the quiz and participate in classroom discussion.

Prepare to take notes. Research has suggested that taking written notes may be better for long-term retention than typing (Mueller & Oppenheimer, 2014). For this reason, lecture slides will be posted on Canvas so you can print them off and use them for your note-taking. To save paper and printing costs, you may want to select the "handouts" format, so multiple slides are on one page. Additionally, taking notes on these slides can provide an excellent "cue" for remembering what was taught in class.

Eliminate distraction. In class and during your personal study, your electronic devices may be the greatest distraction to you. Using electronic devices for non-essential purposes in class has been associated with significant drops in student grades (Ravizza, 2014). Even just having your cellphone near you may lead to less learning because the notifications grab your attention (Stothart, Mitchum, & Yehnert, 2015). You will get more out of class if you just put away your phone and limit other distractions.

Participate. Most college instructors encourage participation during classroom discussion. Participation is not only important for your academic achievement, but also for your vocational success. Participating in class helps you to communicate, problem-solve, and collaborate with other classmates - all of which are essential skills employers seek for when making hiring decisions (National Association of Colleges and Employers, 2018). Participation enhances learning and helps you acquire the skills most sought after by employers.

Apply what you learn. When you apply what you learn, you connect new concepts to previous knowledge. Forming analogies is a great way to do this, and may enhance your learning (Huglund, 2013). The use of analogies and metaphors can help you grasp and remember difficult concepts by applying what you learn to real-life situations.

Space your study sessions. Spreading out your studying over several sessions per week instead of cramming is generally more effective (Arthur et al., 2010). This will also save you time and energy, as well as making your studying more productive in the long run.

Combat procrastination. Spacing your study sessions helps you avoid procrastination, but so does making *precommitments*. A *precommitment* involves a choice that is difficult to change later. Create a schedule to stick to, such as joining a study group, having your partner, friend or co-worker encourage you to study at a specific time, or reserve a room in the library. A precommitment involving peer pressure (such as in a study group) may be even more effective.

Teach someone else. If you are studying a difficult concept or problem, try vocalizing it. Software engineers use a method called “rubber duck debugging” to debug code. They describe code, line by line, to a rubber duck placed on, or by, their computer. If you practice vocalizing the problem, you too, can hit upon a solution. By teaching a person or object, your brain switches from focused state (task positive network) to a diffused state (default mode processing), activating different neural circuitry. Switching gears may help you find your answers. When you feel “stuck”, try to describe it to someone, or even teach it to your favorite inanimate object. I promise, I won’t tell anyone.

COURSE ASSIGNMENTS & GRADES

Final grades are based on a point system. The percentage breakdown is as follows:

A 100-93%	B- 82-80%	D+ 64-62%
A- 92-90%	C+ 79-75%	D 61-58%
B+ 89-87%	C 74-70%	D- 57-55%
B 86-83%	C- 69-65%	E 54-0%

TENTATIVE COURSE CALENDAR (changes may be made at the discretion of the instructor)

DATE	TOPICS	ASSIGNMENTS/READING
WEEK 1 – CLASS INTRODUCTIONS & EXPECTATIONS		
Jan 7 (Tue)	Introductions, Syllabus Review, Course Overview	
Jan 9 (Thur)	Psychology of Learning and Memory: <i>Philosophical Traditions & Modern Concepts</i>	Reading: Syllabus In-class Quiz 1: Syllabus (5 points)
WEEK 2 – NEUROSCIENCE OF LEARNING AND MEMORY		
Jan 14 (Tue)	Neuroscience of Learning and Memory: <i>Brain Structure & Function</i>	<i>Chapter 2: Structural Properties of Nervous System</i> In-class Quiz 2: Chapter 2 (5 points)
Jan 16 (Wed)	Neuroscience of learning and Memory: <i>Nervous System Activity</i>	<i>Chapter 2: Functional Properties of Learning and Memory</i> In-class Quiz 3: Chapter 2 (5 points)
WEEK 3 – HABITUATION, SENSITIZATION AND FAMILIARIZATION		
Jan 21 (Tue)	Habituation, Sensitization, and Familiarization: <i>Behavioral Processes & The Brain</i>	<i>Chapter 3 Reading Due: Behavioral Processes</i> In-class Quiz 4: Chapter 3 (5 points)
Jan 23 (Thur)	Habituation, Sensitization, and Familiarization: <i>The Brain & Clinical Perspectives</i>	<i>Chapter 3 Reading Due: Brain Substrates & Clinical Perspectives</i> In-class Quiz 5: Chapter 3 (5 points)

WEEK 4 - CLASSICAL CONDITIONING		
Jan 28 (Tue)	Classical Conditioning: <i>Predicting Significant Events Contingencies</i>	Chapter 4 Reading Due: Behavioral Processes In-class Quiz 6: Chapter 4 (5 points)
Jan 30 (Thur)	Classical Conditioning: <i>Cells, Motor Reflex & Addiction</i>	Chapter 4 Reading Due: Brain Substrates & Clinical Perspectives In-class Quiz 7: Chapter 4 (5 points) Paper 1: TED Talk or ScienceDaily Article (20 points) Exam 1 Open: Jan 30th 2:00 pm. Chapters 1-4 (ChiTester, 50 points)
WEEK 5 – OPERANT CONDITIONING		
Feb 4 (Tue)	Operant Conditioning: <i>Learned Outcome of Behaviors</i>	Chapter 5 Reading Due: Behavioral Processes In-class Quiz 8: Chapter 5 (5 points)
Feb 6 (Thur)	Operant Conditioning: <i>Hijacking of the Brain</i>	Chapter 5 Reading Due: Brain Substrates & Clinical Perspectives In-class Quiz 9: Chapter 5 (5 points) Exam 1 Close: Feb 6th 6:00 pm. Chapters 1-4 (ChiTester, 50 points)
WEEK 6 – GENERALIZATION, DISCRIMINATION AND CONCEPT FORMATION		
Feb 11 (Tue)	Generalization, Discrimination learning and Concept Formation: <i>Behavioral Processes</i>	Chapter 6 Reading Due: Behavioral Processes In-class Quiz 10: Chapter 6 (5 points)
Feb 13 (Thur)	Generalization, Discrimination learning and Concept Formation: <i>The Brain and Clinical Disorders</i>	Chapter 6 Reading Due: Brain Substrates & Clinical Perspectives In-class Quiz 11: Chapter 6 (5 points)
WEEK 7 – EPISODIC AND SEMANTIC MEMORY		
Feb 18 (Tue)	Episodic and Semantic Memory: <i>Memory for Facts and Events</i>	Chapter 7 Reading Due: Behavioral Processes In-class Quiz 12: Chapter 7 (5 points)
Feb 20 (Thur)	Episodic and Semantic Memory: <i>Brain Regions and Memory Formation</i>	Chapter 7 Reading Due: Brain Substrates & Clinical Perspectives In-class Quiz 13: Chapter 7 (5 points)
WEEK 8 – SKILL MEMORY		
Feb 25 (Tue)	Skill Memory: <i>Learn by Doing</i>	Chapter 8 Reading Due: Behavioral Processes In-class Quiz 14: Chapter 8 (5 points)
Feb 27 (Thur)	Skill Memory: <i>Basil Ganglia, Skill Learning & Clinical Perspectives</i>	Chapter 8 Reading Due: Brain Substrates & Clinical Perspectives In-class Quiz 15: Chapter 8 (5 points)
WEEK 9 – SPRING BREAK (NO CLASS)		
Mar 4 (Tue)	NO CLASS – SPRING BREAK	NO ASSIGNMENTS
Mar 6 (Thur)	NO CLASS – SPRING BREAK	NO ASSIGNMENTS
WEEK 10 – WORKING MEMORY & COGNITIVE CONTROL		
Mar 10 (Tue)	Working Memory and Cognitive Control: <i>Short-term & Long-term Memory</i>	Chapter 9 Reading Due: Behavioral Processes In-class Quiz 16: Chapter 9 (5 points) Paper 2: Everyday Activity (20 points) Exam 2 Open: March 10th 2:00 pm. Chapters 5-8 (ChiTester, 50 points)
Mar 12 (Thur)	Working Memory and Cognitive Control: <i>Frontal Cortex of the Brain</i>	Chapter 9 Reading Due: Brain Substrates & Clinical Perspectives In-class Quiz 17: Chapter 9 (5 points)
WEEK 11 – EMOTIONAL INFLUENCES ON LEARNING & MEMORY		
Mar 16 (Tue)	Emotional Influences on Learning and Memory: <i>Emotional Impact on Memory</i>	Chapter 10 Reading Due: Behavioral Processes In-class Quiz 18: Chapter 10 (5 points) Exam 2 Open: March 16th 6:00 pm. Chapters 5-8 (ChiTester, 50 points)
Mar 19 (Thur)	Emotional Influences on Learning and Memory: <i>Emotional Processing in the Brain</i>	Chapter 10 Reading Due: Brain Substrates & Clinical Perspectives In-class Quiz 19: Chapter 10 (5 points)

WEEK 12 – EMPLOYMENT & SOCIAL LEARNING		
Mar 24 (Tue)	Resume/grad school Presentation	
Mar 26 (Thur)	Social Learning and Memory: <i>Observing, Imitating, and Reenacting</i>	Chapter 11 Reading Due; Bandura, <i>Imitation & the Brain</i> In-class Quiz 20: Chapter 11 (5 points)
WEEK 13 – DEVELOPMENT & AGING		
Mar 31 (Tue)	Development and Aging: <i>Infancy through Adolescence</i>	Chapter 12 Reading Due: <i>Behavioral Processes</i> In-class Quiz 21: Chapter 12 (5 points)
Apr 2 (Thur)	Development and Aging: <i>Genes, Environment, & Disorders</i>	Chapter 12 Reading Due: <i>Brain Substrates & Clinical Perspectives</i> In-class Quiz 22: Chapter 12 (5 points)
WEEK 14 – PSYCHOLOGY EMPLOYER PRESENTERS		
Apr 7 (Tue)	Psychology Employer Presenters	In-class Quiz 23 (5 points)
Apr 9 (Thur)	Course Review: <i>Applying what you've learned</i>	In-class Quiz 24 (5 points)
WEEK 15 – STUDENT PRESENTATIONS		
Apr 14 (Tue)	5-Minute Student Presentations	In-class Quiz 25 (5 points) Learning & Memory Presentation (20 points)
Apr 16 (Thur)	5-Minute Student Presentations & Exam 3 Review	In-class Quiz 26 (5 points) Paper 3: Spaced Practice (20 points) Learning & Memory Presentation (20 points) Exam 3 Open: April 16th 2:00 pm. Chapters 9-12 (ChiTester, 50 points)
WEEK 16 – FINALS WEEK		
Apr 21 (Tue)	NO CLASS - FINALS WEEK	
Apr 23 (Thur)	NO CLASS - FINALS WEEK	Exam 3 Open: April 23rd 6:00 pm. Chapters 9-12 (ChiTester, 50 points)

COURSE POLICIES

Accommodations for Students with Disabilities: Any student requiring accommodations or services due to a disability must contact Disability Services (DS) in Room 181 of the Student Services Center (or Room 256 at the Davis Campus). Disability Services can also arrange to provide course materials (including this syllabus) in alternative formats upon request.

Academic Dishonesty: Academic dishonesty of any kind will not be tolerated in this class. All students are expected to fulfill the rights and responsibilities outlined in the WSU Student Code (see weber.edu/ppm/policies/6-22_StudentCode.html), including sanctions for dishonest academic behavior (plagiarism, cheating, etc.). Penalties for academic dishonesty could include receiving a failing grade for this course or being suspended from school.

Extended Campus Closure: In the event of an extended campus closure, I will continue to provide instruction and interaction via email. These messages may include attaching lectures, assignments and readings. If the campus is closed on the test date, the test will be postponed to a further date.

ESSENTIAL SKILL DEVELOPMENT

Employers and graduate school recruiters consistently identify key skills they seek for in potential candidates. These key skills are often gained in the classroom or acquired through professionalizing experiences. These skills are appropriately termed “essential skills.” Practicing these skills may also enhance learning. Below is the definition of these essential skills, how you might develop them, and how they may enhance your learning.

Career Readiness Competencies	2019 Weighted Average Rating*
Critical thinking/problem solving	4.66
Teamwork/collaboration	4.49
Professionalism/work ethic	4.48
Oral/written communications	4.41
Digital technology	4.30
Leadership	3.84
Career management	3.65
Global/multi-cultural fluency	2.78

Source: *Job Outlook 2019*, National Association of Colleges and Employers.

*5-point scale, where 1=Not essential, 2=Not very essential, 3=Somewhat essential, 4=essential, 5=Absolutely essential.

Critical Thinking/Problem Solving: Use sound reasoning to analyze, make decisions, and come to conclusions by using knowledge, facts and data in the process. Solving problems in class helps students change from a passive recipient to active participant - improving one’s understanding (Rossman, 1993). Individually, and in a group, we will identify relevant problems related to subjects in this course and discuss possible solutions.

Teamwork/Collaboration. It is expected of you to build a collaborative relationship with colleagues regardless of cultures, races, genders, ages, religion, lifestyles, and viewpoints. A two-year study of college students showed that students who participated in teamwork activities not only improved learning, but also career success (Sanchez & Craig, 2007). Additionally, for college success and beyond, it is important to form collaboration with your instructors, key staff, and faculty at WSU. They may be the very ones writing a letter of recommendation for your employment or graduate school application!

Professionalism/Work Ethic: Demonstrate professional academic and work habits, including punctuality, productively, time management, and personal accountability. Arriving to class on time, avoiding side conversations, and putting away your phone will help you focus. Your phone negatively impacts your grade but is also a common problem tied to professionalism and productivity issues at work (Stothart, Mitchum, & Yehnert, 2015).

Oral/Written Communication Skills: To articulate your thoughts and ideas clearly and effectively in both written and oral format. You acquire these skills by participating in class discussions, making valid contributions, and asking pertinent questions. Research supports teaching concepts to others improves learning (Fiorella & Mayer, 2013) and that writing aids learning as well (Anderson, Gonyea, Anson, Paine, 2015). In this class, you will be communicating concepts to your classmates, as well as expressing concepts and your experiences through written assignments.

Digital Technology: Julius Yego, a native Kenyan, became a world champion javelin thrower. He did so without a coach and without formal training. How did he do it? By watching YouTube videos (hence, his nickname, “Mr. YouTube”). You too, can leverage existing digital technologies to learn, enhance your skills, solve problems, complete tasks, and accomplish goals. By demonstrating effective adaptability to new and emerging technologies, you increase your value to a company as well.

Leadership: Leverage the strengths of others to achieve common goals. Use interpersonal skills to coach, develop, motivate, organize, prioritize and delegate work. There is a strong link between leadership and developing self-efficacy (Glasser, 1993). Leadership skills can be developed through activities that encourage decision making, collaborating, getting along with others, and working in groups (Wingelback & Kahler 1997). Additionally, becoming engaged in leadership opportunities on campus and within the community, proves to employers you have these leadership skills.

Career Management: Identify and articulate your skills, strengths, knowledge, and experiences relevant to your career goal. Research has suggested that teachers may significantly underestimate the ability students have in understanding skills in work and how it impacts them as adults (Galinsky, 1991). Therefore, we will discuss how the content of this course is relevant to work and employability. You will learn to showcase your skills on an employment

or grad school resume. We will also have recruiters present to our class to discuss how learning and memory principles are applied in these work contexts.

Global/Multi-cultural Fluency: Learn from diverse cultures, races, ages, genders, sexual orientations, and religions. Demonstrate openness, inclusiveness, sensitivity, and interact respectfully with all people. When a student's intercultural understanding increases, it may improve both knowledge-based learning and skills-based learning (Asia Education Foundation, 2015). Specifically, it may transform your knowledge through experience (Kolb, 1984). In this class it is expected of you to interact respectfully, exercise cultural sensitivity, be open to different perspectives, and collaborate with others different from you.

REFERENCES AND SUGGESTED READINGS

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