

BEP-220 Brain, Learning, and Cognition

Fall 2026, College of Education, The University of Alabama

Instructor: Dr. Firat Soylu (fsoylu@ua.edu)

Room: Autherine Lucy Hall 202

Meeting Time: Tuesdays and Thursdays, 12:30 PM – 1:45 PM

Office hours: Weds 12:00 pm - 2:00 pm. Reserve a time-slot

Office: Capital Hall 1812

Teaching Assistants: Christofer Lumban (chlumbantobing@crimson.ua.edu) & Eirini Kalogeropoulou (eckalogeropoulou@crimson.ua.edu)

Course Description

This course explores neural, behavioral, cognitive, and evolutionary theories and findings on learning, memory, and cognition. The course emphasizes the dynamic relationship between brain mechanisms and learning environments, and focuses on the neural, cognitive, and behavioral aspects of this relation. Key topics include the neuroscience of learning and memory, learning about repeated events, classical and operant conditioning, and the principles of generalization, discrimination, and concept formation. The course then explores higher-order memory systems, such as episodic, semantic, skill, and working memory, along with the mechanisms of cognitive control. Special emphasis is given to the ways emotion, social context, and development across the lifespan influence learning and memory. By the end of the course, students will gain a comprehensive understanding of the processes that shape how humans acquire, retain, and apply knowledge and skills.

Student Learning Outcomes

Students will be able to:

- explain the basic neural correlates, neural networks, and behavioral processes involved in human learning and memory and understand why they are important for educators to understand.
- distinguish between the various classifications of memory: episodic memory, semantic memory, skill memory, working memory, and cognitive control.
- differentiate between mechanisms of learning such as habituation, sensitization, familiarization, conditioning, and generalization, discrimination, and concept formation.
- explain how new findings from neuroscience have allowed psychologists to consider the functional and physiological mechanisms that underlie the behavioral processes of learning and memory.
- analyze and discuss research studies in learning and memory that have contributed to the advancement of educational neuroscience.

Prerequisites

PY 101 - Introduction to Psychology

Textbook

ACCESS GRANTED EBOOK / BEP 220 AGP (GLUCK/LEARNING AND MEMORY) Subtitle: ACCESS GRANTED EBOOK / BEP 220 AGP (GLUCK/LEARNING AND MEMORY) ISBN: 978-0-01-399544-7

Required or Recommended: Required

You can opt in to use the access granted ebook version or acquire the hardcopy of the book.

Contacting the Instructor

You can contact the instructor, Dr. Firat Soylu, through email (fsoylu@ua.edu). Please ensure that you have “BEP 220” in your subject line.

Summary of Course Activities

This course comprises 12 modules. We will cover one module each week. For every module, we will have a lecture on Tuesdays, providing an overview of the contents for the week. On Thursdays, there will be a brief quiz, followed by a student-run activity, helping synthesize and discuss main concepts for the module. Each Thursday a group of (3-4) students will organize and run an activity. Students will also complete a final exam at the end of the semester.

- Quizzes: There will be a quiz for each module. These quizzes will serve as good practice for the final exam. The quizzes will be given on Thursdays and can only be taken in class.
- Thursday activity: Each week a group of students will organize an activity that helps consolidate and discuss contents for the week. More information will be provided on how these activities will be structured.
- Midterm exam: The midterm exam will consist of a combination of multiple-choice and open-ended questions covering content from Module 1 to Module 9.
- Final exam: The final exam will consist of a combination of multiple-choice and open-ended questions covering material from all modules taught throughout the semester. The final exam will take place on Monday, December 7, 10:30 am - 12:30pm.

Use of Generative AI

AI use is generally not allowed. All submitted work must be produced by the students themselves, whether individually or collaboratively. Use of a generative AI tools such as ChatGPT to complete an assignment constitutes academic misconduct. However, generative AI can be used for searching about literature on a specific topic, provided that you read the original work, or as a grammar check tool.

Schedule & Weekly Themes

- Module 1: Fundamental themes in the psychology of learning and memory
 - Chapter 1, Aug 25 & 27
- Module 2: The Neuroscience of learning and memory
 - Chapter 2, Sept 1 & 3
- Module 3: Habituation, sensitization, and familiarization: Learning about repeated events
 - Chapter 3, Sept 8 & 10
- Module 4: Classical conditioning: Learning to predict significant events
 - Chapter 4, Sept 15 & 17
- Module 5: Operant conditioning: Learning the outcome of behaviors
 - Chapter 5, Sept 22 & 24
- Module 6: Generalization, discrimination learning, and concept formation
 - Chapter 6, Sept 29 & Oct 1
- Module 7: Episodic memory, and semantic memory: Memory for events and for facts
 - Chapter 7, Oct 6 & 8
- Module 8: Skill memory: Learning by doing
 - Chapter 8, Oct 13 & 15
- Module 9: Working memory and cognitive control

- Chapter 9, Oct 20 & 22
- Midterm Exam (Tuesday, Oct 27)
 - No class on Thursday, Oct 29 due to mid-semester study break
- Module 10: Emotional influences on learning and memory
 - Chapter 10, Nov 3 & 5
- Module 11: Social learning and memory: Observing, interacting, and reenacting
 - Chapter 11, Nov 10 & 12
- Module 12: Development and aging: Learning and memory across the lifespan
 - Chapter 12, Nov 17 & 18
- ***——Nov 23–27: Thanksgiving Week - Classes Dismissed——***
- Final Exam Prep & Bonus Topic: Embodied Cognition
 - Dec 1 (Tuesday): Lecture on Embodied Cognition (Readings posted on Blackboard)
 - Dec 3 (Thursday): Preparation for the final exam
- Final Exam
 - Monday, December 7, 10:30 am - 12:30pm

Grading

Quizzes (12 weeks X 3 pts/week)	36 pts
Class attendance (1 pt/class. Total of 27 classes)	27 pts
Activity organization (2 pts activity plan + 10 pts activity organization)	12 pts
Mid-term exam	15 pts
Final exam	20 pts
Total	110 pts

Grading scale: A+: 98–110, A: 90–98, B+: 86–90, B: 80–85, C+: 76–80, C: 70–75, D+: 66–70, D: 60–65, F: 0–59

Policy Statements

Policy on Missed Exams and Coursework

It is important that students turn in all assignments on time and attend classes. Each week, students are required to complete an in-class quiz. You cannot take the quiz if you don't show up for class. Except in the case of documented severe illness, funeral of a family member, or a personal, catastrophic or religious event (as defined by the University policies), assignments submitted late are not accepted. There will not be any exceptions to the policy stated here.

Attendance Policy

Class attendance is necessary and required. It is expected that you undertake appropriate prior preparation for each class period and actively participate during class. Attendance will be taken. In the case of an excused absence (documented severe illness, funeral of a family member, or a personal, catastrophic or religious event, as defined by the University policies), please contact the instructor by email in advance or at least within two days of the absence and include the documentation (e.g., doctor's report) for your excuse.

Notification of Changes

The instructor will make every effort to follow the guidelines of this syllabus as listed; however, the instructor reserves the right to amend this document as the need arises. In such instances, the instructor will notify students in class and/or via email and will endeavor to provide reasonable time for students to adjust to any changes.

Mission of the College of Education

Our mission in the College of Education is to be a leader in Alabama and across the nation in teaching, scholarship, advocacy, and service by developing professionals with pedagogic and disciplinary expertise who advance the intellectual and social conditions of all learners in a globalized society.

Conceptual Framework Summary

The vision of the College of Education (COE) at The University of Alabama is to develop effective, ethical, and reflective professionals who advance the theme of the COE: Unite, Act, and Lead (UA Leads). By engaging in theoretically informed and intellectually advanced effective practice our graduates will

UNITE with the larger community to collaboratively nurture cultural competence, empathy, and a vision of equity and justice for all learners;

ACT to develop the full potential of all learners to be excellent professionals in their fields; and

LEAD through continuous research-based critical inquiry of policy and reflective practice to enable transformative change in our diverse local and global communities.

Dispositions

We strive to create programs that emphasize Fairness and Equity, Reflective Stance for Professional Practice, a Commitment to Diversity, and a Culture of Collaboration.

Statement on Academic Misconduct

Students are expected to be familiar with and adhere to the official Code of Academic Conduct provided in the Online Catalog (<https://catalog.ua.edu>).

Statement on Disability Accommodations

- Contact the Office of Disability Services (ODS) as detailed in the Online Catalog.
- The Office of Disability Services (ODS) is the central contact point for UA students with disabilities. The goal of ODS is to ensure that University programs and services are accessible to qualified students with disabilities. For student who may require their services more information is available at <http://ods.ua.edu>. ODS is located at 1000 Houser Hall and their phone number is 348-4285 (voice) or 348-3081 (TTY).

Severe Weather Protocol

Please see the latest Severe Weather Guidelines in the Online Catalog. The link for the Severe Weather Guidelines is <https://ready.ua.edu/severe-weather-guidelines/>

Statement on Pregnant and Parenting Students

Title IX is a federal law that prohibits discrimination on the basis of sex in an education program. Among the types of gender discrimination covered by this statute, Title IX protects against discrimination related to pregnancy or parental status. Protection extends to students who are pregnant or who have either had a false pregnancy, termination of pregnancy, have gone through childbirth, or are recovering from any of those conditions. Title IX regulations also prohibit a school from applying any rule related to a student's parental, family or marital status that treats students differently based on their sex. For more information, please visit http://provost.ua.edu/uploads/3/9/7/6/39760652/student_pregnancy_faq_final_8_11_17.pdf

Statement on Religious Observances

The University of Alabama respects the religious diversity of our academic community and recognizes the important of religious holy days and observances in the lives of our community members. For more information, please go to <http://provost.ua.edu/religious-observances.html>

Statement on Academic Work Duplication

Any submission of academic work designed to meet the requirements of a particular credit-bearing course is assumed to be work completed for that course and only that course; the same material submission, or material that is substantially similar, may not be used to meet the requirements of another course. Any violation of this rule may result in a referral to the Associate Dean for Student Services and Certification for disciplinary action.

UAct Statement

The UAct website provides an overview of The University's expectations regarding respect and civility. The website link is <https://www.ua.edu/campuslife/uact/>