

Syllabus: Science of Learning and Memory

The **Science of Learning and Memory** course, offered through MITx Online, delves into the mechanisms of how we learn, remember, and sometimes forget. Designed for learners of all backgrounds, it combines theoretical insights with interactive activities to enhance understanding of cognitive processes.

Course Overview:

- **How We Learn:** Examine the principles of classical and operant conditioning.
- **Stages of Memory:** Explore the processes of encoding, storage, and retrieval of information.
- **Memory Disorders:** Investigate conditions such as retrograde and anterograde amnesia.
- **Memory Systems:** Understand the roles of short-term, long-term, and sensory memory.
- **Interactive Components:** Engage in activities to test and reflect on your own memory capabilities.

Learning Objectives:

- Grasp the fundamental processes involved in learning and memory.
- Apply conditioning principles to real-world scenarios.
- Identify and differentiate between various memory systems.
- Analyze the causes and effects of memory-related disorders.

Prerequisites:

None. This course is accessible to all individuals interested in the subject matter.

Teaching Staff

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**Course Sections**

All sections of this course will be available on January 7, 2025 (15:00 UTC) - January 28, 2025 (15:00 UTC).

Section 1: Learning

This week introduces the principles of classical and operant conditioning, exploring how behaviors are shaped by reinforcement, resilience, and motivation. We also examine the limits of conditioning, including evolutionary constraints, latent learning, and connections to language acquisition.

Section 2: Memory

This week covers the stages of memory—sensory, short-term, and long-term—along with how memories are encoded. We also explore common challenges with memory, including forgetting and interference.

Section 3: Amnesia

This week examines amnesia, including anterograde and retrograde types, and their effects on memory systems like episodic, semantic, and procedural memory. Case studies, such as patient H.M., highlight the roles of the amygdala, repetition priming, and memory disorders like Huntington's and Alzheimer's disease.

Test Yourself Questions, Concept Map Homeworks, and Quizzes

All course materials and assessments will be available on January 7, 2025 (15:00 UTC) - January 28, 2025 (15:00 UTC). While the deadline for all activities is the last day of the course, January 28th, we strongly encourage students to distribute their workload evenly over the three-week period. The recommended time commitment is 2-4 hours per week, totalling 6-12 hours for the entire course.

Please note that the schedule uses Coordinated Universal Time (UTC), or Greenwich Mean Time (GMT). To determine the corresponding time in your local time zone, you can use an online time zone converter. <http://www.timeanddate.com/worldclock/converter.html>.

Handouts and Glossary

Several handouts as well as a glossary of terms used in each section are available. Handouts can be found on the home course page and the glossary can be found under the “glossary” tab.

Discussion Forums

Throughout the course, you will encounter several discussion questions designed to deepen your understanding of the material by asking you to relate it to your own life or observations. You are encouraged to respond to these questions in the associated discussion forums and engage with your peers.

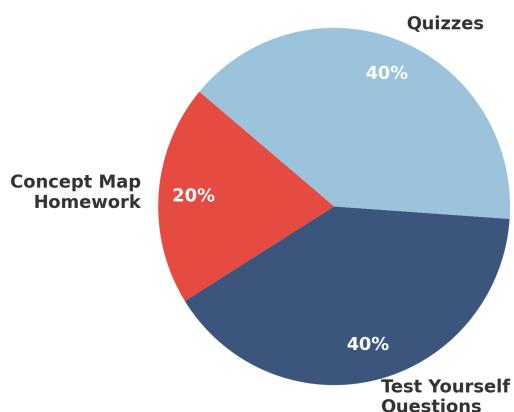
Discussion Forum Guidelines

We encourage open and thoughtful discussions in the forum. To ensure a positive learning environment for everyone, please follow these guidelines:

- Be respectful and considerate of others' perspectives.
- Focus on constructive and relevant contributions to the topic.
- Avoid offensive or inappropriate language.
- Keep discussions focused on course content and learning objectives.

Let's work together to create a supportive and engaging community for learning!

Grade Distribution



Here is the pie chart illustrating the distribution of assessment types: Concept Map Homework (20%), Test Yourself Questions (40%), and Quizzes (40%). Note: quizzes are only accessible to learners on the certificate track.

Grade range

To earn a certificate, you must earn an A or B in the course.

81-100 = A

66-80 = B

0-65% = Fail

Academic Policy

You are expected to complete all assessments and questions independently. Cheating violates academic integrity and ultimately hinders your own learning and growth. We strongly caution you against engaging in such behavior. Stay honest and use this opportunity to challenge yourself and truly benefit from the course.

Honor code

All learners are expected to follow the MITx Online Honor code, available at

<https://mitxonline.mit.edu/honor-code/>

Accessibility Commitment

If you have a disability-related request regarding accessing this course, please contact MITxOnline Support at mitxonline-support@mit.edu as early in the course as possible."

How to ask for help:

Course help

To get help with the course, click the Discussion tab and post a question. General course questions can be added to the "General" discussion and technical questions can be added to the "Technical help" discussion. If you are uncomfortable posting the question in our forum, you can email us at course9mitxonline@gmail.com. Our teaching assistant, Kristen DiConza, will do her best to respond to you within 24 hours during weekdays and within 48 hours during weekends. Please note, Kristen will be operating in the Eastern Time Zone.

Here are a few FAQ resources that may be helpful as well:

MITx FAQ:

<https://mitxonline.zendesk.com/hc/en-us/categories/4409603743259-About-MITx-Online>

Technical Assistance FAQs:

<https://mitxonline.zendesk.com/hc/en-us/categories/13681060882971-Technical-Assistance>

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