

Neuroscience 1140

Biological Bases of Learning and Memory Honors Section

The goal of the Honors Section is to foster the development of verbal, writing and critical thinking skills through the analytical appraisal of assigned scientific publications. The sequential thematic organization of the publication list follows the three-part outline of the course (see Syllabus). In each part of the course, every student is required to make a 30-min oral presentation and a written report of the assigned publication.

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SYLLABUS

Part I: Clinical perspectives

Introduction: Definition of Memory and Learning

Introduction

Topic 1: Human Memory

Background: Macroscopic Organization of the Human Brain

Topic 2: Acute and Chronic Alcoholism

Korsakoff Wernicke Syndrome; cases NA and BY

Background: Anatomy of the Diencephalic Region

Topic 3: Alzheimer's Disease

Background: Anatomy of the Hippocampal Formation

Topic 4: Patients with Hippocampus Damage

Patients HM, RB, GD, LM, and WH.

Topic 5: Hippocampus Index and Episodic Memory

Part II: Behavioral processes and brain systems

Topic 6: Monkey Models of Amnesia:

Processes involved in Learning and Memory in Subhuman Primates.

Topic 7: Simple Learning:

General Overview of the Behavioral Paradigms to Study Learning in the Laboratory: Habituation, Sensitization, and Classical Conditioning.

Topic 8: General Overview of the Experimental Techniques Commonly Used To Determine The Memory Site.

Topic 9: The Case of the *Aplysia*

Background: Second messengers

Topic 10: Overview of Long-term Potentiation (LTP) of Synaptic Transmission in the Mammalian Brain

Part III: Cellular and molecular mechanisms

Topic 11: Maintenance of LTP

Topic 12: Molecular Mechanisms of LTP

Topic 13: LTP and Memory

Topic 14: Modulation of Memory

Topic 15: Fear Memories

