האוניברסיטה העברית בירושלים THE HEBREW UNIVERSITY OF JERUSALEM



## The Hebrew University of Jerusalem

Syllabus

## INTRODUCTION TO BRAIN SCIENCES - 76997

Last update 09-03-2021

<u>HU Credits:</u> 3

Degree/Cycle: 1st degree (Bachelor)

Responsible Department: Unit in Brain Sciences with a Computational

<u>Academic year:</u> 0

Semester: 2nd Semester

Teaching Languages: English

<u>Campus:</u> E. Safra

<u>Course/Module Coordinator:</u> Inbal Goshen

Coordinator Email: inbal.goshen@elsc.huji.ac.il

Coordinator Office Hours: Sunday, 14:00

Teaching Staff:

Dr. Inbal Goshen, Mr. Nizar Abed, Ms. Adi Kol

## Course/Module description:

How can a chunk of 1.5 kg of flesh be responsible for our perception, dictate our actions and be the seat of our emotions and cognition? During the course we will explore the structure and function of the brain from the cellular, circuit and area level. We will learn how neurons can master electrical biophysical signals to process information and, together with glia cells, generate behavior. The learning process is highly interactive as it includes class discussions on current literature and various "hands-on" experiences such as building neurons as RC circuits and dissecting bovine brains at class.

Course/Module aims:

## Learning outcomes - On successful completion of this module, students should be able to:

At the end of the course the students will understand the basic principles of the nervous system's activity, and be able to read current literature in neuroscience.

<u>Attendance requirements(%):</u> 100

Teaching arrangement and method of instruction:

Course/Module Content:

1) Intro to cell biology

- 2) cell types in the nervous system
- 3) Membrane potential at rest and in action.
- 4) Synapses
- 5) Functional Neuroanatomy the structure of the human brain.
- 6) Neurotransmitters
- 7) The effects of drugs on brain systems.
- 8) Visual perception
- 9) Auditory perception
- 10) Advanced methods in neuroscience.

Required Reading:

Carlson, Neil, R., Physiology of Behavior, 11th or 10th or 9th edition, Allyn & Bacon, 20XX.

And several articles - a list will be given at the beginning of the semester.

The course does NOT follow the book.

Additional Reading Material:

<u>Course/Module evaluation:</u> End of year written/oral examination 0 % Presentation 0 % Participation in Tutorials 0 % Project work 0 % Assignments 20 % Reports 0 % Research project 0 % Quizzes 55 % Other 25 % Active participance

Additional information: