האוניברסיטה העברית בירושלים
THE HEBREW UNIVERSITY OF JERUSALEM

The Hebrew University of Jerusalem

Syllabus

Brain Rhythms and Cognition - 51793

Last update 22-09-2016

HU Credits: 2

Degree/Cycle: 2nd degree (Master)

Responsible Department: psychology

Academic year: 0

Semester: 1st Semester

Teaching Languages: English

Campus: Mt. Scopus

Course/Module Coordinator: Dr. Ayelet Landau

Coordinator Email: ayelet.landau@huji,ac.il

Coordinator Office Hours: by scheduling

Teaching Staff:

Dr. Ayelet Landau

Course/Module description:

What are brain rhythms? Brain responses reveal temporal structure. Brain rhythms may, therefore, be key to understanding how the brain and cognition works.
In this seminar we shall examine the mechanistic roles proposed for brain rhythms. The role of brain rhythms will be discussed in topics ranging from spatial navigation, working memory, attention, perception to language processing. In the seminar we shall assess the physiological plausibility of different mechanistic roles and models proposed for brain rhythms in cognition. Background in neurophysiology, neuroanatomy and cognitive psychology are required.

Course/Module aims:

(1) surveying many studied neural systems in which oscillations play a role.
(2) assessing the specific mechanistic roles implemented through rhythmic brain activity.
(3) Gain basic understanding of brain signal processing, required to evaluate results and current
(4) Gain hands-on experience with EEG recording, able to capture brain rhythms from data acquisition through basic preprocessing steps to elementary data processing and analysis – if time permits!

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

(1) knowledge of the brain rhythms literature
(2) mechanistic understanding of the mechanisms brain rhythms could serve
(3) basic ability to understand analysis pipeline and high ability to read papers reporting such pipelines

Attendance requirements(%):

80

Teaching arrangement and method of instruction: lectures and student presentations

Course/Module Content:

The course will introduce the topic of brain oscillation from a methodlogical point of view and will then assess their role in different cognitive functions, such as:

perception, language, sleep, attention and memory

Required Reading:
a combination of book chapters and research reports will be provided at the beginning of the term.

Additional Reading Material:

Course/Module evaluation:
End of year written/oral examination 0 %
Presentation 20 %
Participation in Tutorials 10 %
Project work 50 %
Assignments 20 %
Reports 0 %
Research project 0 %
Quizzes 0 %
Other 0 %

Additional information: