Course program and reading list

Semester 1 Year 2023

School: Baruch Ivcher School of Psychology

Functional Magnetic Imaging Course FMRI

Lecturer:

Prof. Amir Amedi amir.amedi@runi.ac.il

Course No.:	Course Type :	Weekly Hours :	Credit:
9060	Elective	2	2

Course Requirements :	Group Code :	Language:
Final Paper	232906002	English

Prerequisites

Prerequisite:

8000 - Introduction To Psychology
8935 - Biological Basis of Behavior A **OR** 9067 - Psychology and Neuroscience: An Interdisciplinary Approach A

Course Description

Functional magnetic resonance imaging (fMRI) is an advanced method for measuring brain activity with high resolution that has become a significant research tool in brain research, cognition, medicine and psychology during the last two decades. The purpose of the current course is to give students an initial theoretical and practical basis in MRI and fMRI. In the concentrated course that is spread over five study days in the last week of October, the students will go through an introductory lesson on the device and its capabilities, the essence of the hemodynamic signal that is being measured and the structure of the output and its meanings. We will go over the preprocessing methods

accepted in the field and their application as well as the variety of common analysis methods (GLM, Correlation, Resting state function connectivity, Phase analysis). If we have enough time, we will also learn more advanced methods and share a number of important discoveries that were discovered mainly thanks to studies employing imaging methods in humans and especially through fMRI. By the end of the course, the students will get a taste of a number of application tools through which they will be able to develop and analyze fMRI experiments.

Course Goals

Students will receive an introductory glance into a range of application tools, including one through which they will be able to analyze fMRI experiments independently. Students will be able to generalize their knowledge beyond the specific software with respect to the basic principles underlying fMRI data analysis.

Grading

Final paper: 40%

Active participation: 60%