

# Syllabus

## Introduction to EEG methods in Cognitive Science

PhD Research Course  
Department of Cognitive Science  
Central European University  
Winter 2017, 2 credits

**Class:** Fridays 13:30 to 15:10, Room 103, Október 6. utca 7, and in the labs

### Instructors:

Gergely Csibra  
Katarina Begus  
Dimitrios Kourtis  
Barbara Pomiechowska

### Description:

This course introduces students to the use of electroencephalography (EEG) for measuring brain function to access cognitive mechanisms in humans. This is a practical course, where students receive hands-on experience in recording and analyzing EEG data, as well as in designing experiments and interpreting findings using this method.

### Learning Outcomes

By the end of the course, students should

- be familiar with the nature of the EEG signal and its derivatives,
- be able to design experiments using EEG measures,
- know the basic steps of analyzing EEG data, and
- be able to critically interpret the results of studies published with this technique.

### Evaluation:

Grade is awarded on the basis of

- attendance of classes and lab practice,
- completing assignments in data analysis,
- and submitting a research report and an experimental design by the end of the term (submission deadline: April 10, 2017).

**Schedule:**

January 13

Assessing cognitive mechanisms via EEG-derived methods

January 20

The neural basis of the EEG signal and its dependent measures

January 27

Recording EEG: principles and techniques

February 3

Recording lab practice (CDC lab & Somby Lab)

February 10

The initial steps of EEG analysis

February 17

Event-related potential (ERP) analysis

February 24

Spectral analysis and time-frequency analysis

March 3

Quantification and statistical analyses

March 10

Interpretation and critical evaluation of published studies

March 17

Experimental design for EEG/ERP studies

March 24

NO CLASS

March 31

Combination of neuroimaging methods and Discussion