# Course: Integrative Neuroscience (5 ECTS/5 op)

Organizer:

Prof. Teija Kujala

Course Description:

This course provides opportunities for post graduate students and undergraduate students in psychology and other related disciplines to learn the methodological basis for the major neuroimaging tools and their applications in neuroscience. The course will consist of a series of lectures to be given by experts in the field and of literature (to be announced later). As prerequisite, the students should have taken introductory undergraduate courses in neuroscience. All the lectures will be given at the University of Helsinki, Department of Psychology (Room K69). The course will be also available to all interested eligible graduate and post graduate students of psychology in Finland via Psykonet (more information from the local teacher). In the University of Helsinki, the maximum of 40 students will be included (unlimited for the rest of the country). In the University of Helsinki the registration is through WebOodi; in other Universities, the local teacher provides more information on registration. Additionally, at least 5 post graduate students from the Helsinki University of Technology can be included. Those HUT students who are interested, please send an email to Teija Kujala (teija.m.kujala@helsinki.fi - note the ".m."!) in September 1-11 (not earlier). In your email you should tell your name, student number, and major subject, and whether you are an undergraduate or a post graduate student.

Lecturers:

Prof. Kimmo Alho, Dr. Doc. Minna Huotilainen, Prof. Risto Ilmoniemi, Prof. Christina Krause, Prof. Teija Kujala, Dr. Doc. Jyrki Mäkelä, Prof. Josef Rauschecker, Prof. Riitta Salmelin, Dr. Doc. Simo Vanni

Course Schedule:

1) 16.9. at 14-16 Teija Kujala and Minna Huotilainen
   Introduction to the course and The very basics of the EEG and MEG signal
2) 17.9. at 14-16 Riitta Salmelin
   MEG in cognitive neuroscience
3) 22.9. at 14-16 Christina Krause
   Brain electric oscillations and cognitive processes
4) 30.9. at 14-16 Josef Rauschecker
   Neurophysiological single-unit recording: still the gold standard?
5) 1.10. at 14-16 Risto Ilmoniemi
   TMS-EEG in the study of cortical excitability and connectivity
6) 6.10. at 14-16 Jyrki Mäkelä
   MEG and navigated TMS in clinical research
7) 7.10. at 14-16 Simo Vanni

fMRI in brain research

8) 8.10. at 14-16 Kimmo Alho
   Applications of fMRI in cognitive neuroscience
9) 15.10. at 14-16 Teija Kujala
   Examination (in Helsinki; locally organized by the responsible teachers in the other Universities)