

« Current research in neuroscience: from molecule to circuit » 9 ECTS

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1. Learning Objectives

After successful completion of our master's course, the students will be able to:

- illustrate several key questions in neuroscience at cellular and molecular level.
- describe different imaging and electrophysiological techniques used in neuroscience. Discuss their advantages and drawbacks..
- perform a critical analysis of figures of a scientific articles.
- design an experimental protocol to answer a specific question
- contribute to a critical discussion

2. Topics

The course will cover neurons and glial cells functions. We will have an overview of several techniques to measure different parameters and manipulate cells, learn which kind of questions they can answer, and how changes at cellular/molecular level may impact the circuit and the behavior.

3. Teaching

- Seminars by researchers experts
- Participation to few seminars of the Cajal School "Advanced techniques for synapse biology", and "Synapse and network day"
- Assisted work on paper analysis and project design
- Micro-internship

4. Examination

Continuous assessment 60% : oral presentation, micro-internship report, round table debate , pair evaluation, homework. Final exam 40%

5. Speakers/topics include

- Elena Avignone, Agnes Nadjar: microglia
- Aude Panatier, Luc Pellerin, Anne-Karine Bouzier: astrocytes
- Arne Battefield: oligodendrocytes
- Jerome Baufreton, Naoya Takahashi: integrated physiology
- Alexandre Favereau: miRNA