TITLE: **From the scientist's mind to the journal: A guided tour through the implementation of experimental designs and use of advanced statistics**

Course instructor: Dr. Jon Andoni Duñabeitia, Group Leader at BCBL, Multilingual Literacy research group & Professor, Faculty of Languages and Education, University of Madrid

TENTATIVE DATES: Sept. 3-5, 2018

NUMBER OF SESSIONS: 3 full day (3 days)

NUMBER OF HOURS PER SESSION: 6 hours

BRIEF NARRATIVE DESCRIPTION OF THE COURSE: In this course the students will be guided through the process of implementing a scientific idea in the format of a sound and coherent experiment in cognitive science of language processing. To this end, the students will first discuss a basic idea that could be implemented and will determine the factorial design that better fits the needs. Once a design is selected, the different materials will be created and the groups of items will be matched in different properties using basic statistical approaches. With the whole list of final materials ready, the students will then learn to program the experiment in a platform, and to this end a basic training on Experiment Builder (SR-Research, Ontario) will be provided. After the first implementation and debugging, a data collection phase will start and the students will collect real data from a reduced sample of participants, with the aim of using real-world data to perform a series of statistical analyses that are of common use among researchers in cognitive science. The students will run a series of analysis of variance and they will also implement different regression models to get the most of the data from different statistical perspectives. To this end, the students will learn how to analyze the data using the latest software in this regard (the JAMOVI and JASP platforms), which also provide a window into Bayesian Null Hypothesis Testing.

TARGET AUDIENCE: Grad and post-grad students with modest/little knowledge of statistics.

PRELIMINARY KNOWLEDGE: No prior specific knowledge is needed. The course will consist of a step-by-step guide that can be easily followed by anyone.

NEEDED SOFTWARE:

<http://www.sr-research.com/eb.html>

<http://osdoc.cogsci.nl/>

<https://www.jamovi.org/>

<https://jasp-stats.org/>

Credits awarded: 5 ECTS

To get full credit award for the course students will:

1. Present and reflect on own research project in class
2. Prepare a design for a study and collect data during the course
3. Analyse the collected data with the tools studied during the course