UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Cognitive and Behavioral Measures

2122-1-F5105P023

Learning area

2: Research methods in experimental psychological sciences

Learning objectives

Knowledge and understanding

• Illustrating the diversity of behavioural approaches employed to study different aspects of cognition (response inhibition, memory, attention).

• Elucidating how the assumptions made by cognitive researchers are reflected in their experimental methods.

Applying knowledge and understanding

• Understanding the experimental design of classic reaction time paradigms in psychology.

• Designing and programming computerized experiments.

• Analyzing and interpreting the data to reach a full grasp of the underlying psychological mechanisms

Contents

Experimental psychology makes large use of behavioral measures to study psychological functions and, more in general, to build theories of cognition. During this course, students will familiarize with the main experimental paradigms and designs of cognitive psychology and how they are implemented. Students will deepen the theoretical knowledge of paradigms and designs proper of cognitive psychology; at the same time, they will acquire basic knowledge on how to implement them as computerized experiments.

Finally, students will also work on behavioral data analysis (reaction times, accuracy, eye-movement data) with the aim to reach a good understanding of the behavioral measures and how to treat them.

Detailed program

- How to define experimental variables: Behaviours, operationalizations, variables and confounds.

- How to define behavioral measures and paradigms to study human cognition.

- Using and analysing chronometric measures: Reaction Times. Accuracy and Signal Detection Theory.

- Behavioral paradigms for the study of language production: naming, picture word interference.

- Behavioral paradigms for the study of language processing: lexical decision, priming and masked priming (theory and programming).

- Megastudies, crowdsourcing and online data collection: the use(fulness) of open science resources.

- Using eye-movements to study behaviour: eye-tracking experiments, metrics and paradigms (reading and visual word paradigm).

- Using eye-movements to study behaviour: data analysis using eye-tracking megastudies (GECO and MECO).

- Experimental design: Develop your own experiment.

Prerequisites

Basic knowledge of statistics. Basic knowledge of softwares for experiment (e.g., E-Prime, OpenSesame, Inquisit). Kknowledge of general psychology.

Teaching methods

The course consists of lessons, classworks, and assignments. All materials needed for the course (e.g., slides, readings) are made available on the e-learning website of the course.

Lessons will be held in presence, unless further COVID-19 related restrictions are imposed.

Assessment methods

The course will verify the ability of students to: appreciate the methodological value of an empirical study, implement a simple behavioral experiment, and inspect behavioral data.

Students will be asked to implement, administer, and present (in the last class) preliminary results of a behavioral experiment (starting from one in-class example, students are asked to develop a novel experiment or reproduce an experiment from literature to run a follow-up).

Textbooks and Reading Materials

All reading materials will be presented and specified during the course and will be available to students on the e-learning website of the course.