



UNIVERSITÀ  
DEGLI STUDI DI MILANO-BICOCCA

## SYLLABUS DEL CORSO

### Cognitive and Behavioral Measures

2324-1-F5105P023

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#### 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, ego-depletion, cognitive load 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.

Experimental methods to manipulate cognitive processes (time constraints, ego depletion, cognitive load, two-response paradigm, conceptual inductions).

Behavioral paradigms for the study of social behavior.

The dual-process approach to human sociality.

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

Experimental design: Develop your own experiment.

## **Prerequisites**

Basic knowledge of statistics. Basic knowledge of softwares for experiment (e.g., Qualtrics) knowledge 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.

## **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**

Capraro, V. (2023). The dual-process approach to human sociality: Meta-analytic evidence for a theory of internalized heuristics for self-preservation. *arXiv preprint arXiv:1906.09948*.

## **Sustainable Development Goals**

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