UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Cognitive and Behavioral Measures

2627-1-F5109P010

Learning area

2: Research methods in experimental psychological sciences

Learning objectives

Knowledge and understanding

- Students will acquire foundational knowledge of experimental paradigms using cognitive and behavioural measures
- They will understand how cognitive processes (e.g., intuition, deliberation) influence human behaviour.

Applying knowledge and understanding

- Students will learn to apply theoretical concepts and experimental data to real life behaviors, like cooperation, altruism, and more.
- They will acquire practical skills in implementing psychological tasks and interpreting results in light of relevant theories.

Making judgment

- Students will learn to assess experimental studies using cognitive and behavioral measures (e.g., RTs, Stroop task), recognizing methodological strengths and limitations.
- Students will develop the ability to design original studies, selecting appropriate tools to investigate social psychological constructs like cooperation and altruism.

Communication Skills

- Students will practice communicating research findings clearly to both expert and non-expert audiences, using appropriate disciplinary language.
- Through group work, students will learn to present research ideas and collaborate effectively in English within teams.

Learning Skills

- Students will learn how to search and critically review scientific literature to support the development of new research ideas.
- Students will develop the ability to stay updated on new tools and methods in cognitive and behavioral research.

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

Delivered teaching (50%). Frontal lectures. Used to introduce the fundamental concepts, theoretical frameworks, and methodological tools relevant to the course.
Interactive teaching (50%). Group works supervised by the lecturer. Students will work collaboratively, in small groups, to conduct a systematic literature review and meta-analysis using the statistical software Stata.

Attendance is mandatory for at least 70% of the classes. Failure to meet this minimum attendance requirement may result in not passing the course. All classes will be delivered in person.

Assessment methods

The course will be assessed on a pass/fail basis only. There is no final exam; evaluation will be based on active participation and any assignments or activities carried out during the course. Specifically, 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). The ability of students to appreciate the methodological value of an empirical study, implement a simple behavioral experiment, and inspect behavioral data will be assessed.

Textbooks and Reading Materials

Capraro, V. (2024). The dual-process approach to human sociality: Meta-analytic evidence for a theory of internalized heuristics for self-preservation. *Journal of Personality and Social Psychology.*

Sustainable Development Goals