Department of Psychology, Stockholm University
Master program and Doctoral program in Psychology, fall semester 2024

Syllabus: Research Methods 1

The aim of the course is to provide skills and tools for critical evaluation of research results and empirical research designs. A theme of the course is biases, fallacies and paradoxes in interpretation of research results and how these may be resolved by thinking clearly about causal inference, using tools like Directed Acyclical Graphs (DAGs) and data simulations. In addition, two seminars are dedicated to research ethics. A group assignment involves designing an empirical study. A satellite course entitled "learn R by EXample" (REX) is included, to get started with data simulations in R.

Course code

Master program: PSMT58; Doctoral program: PS302F. It is the same course given at two levels, the only difference is examination criteria and grades.

Prior knowledge

The course assumes prior knowledge corresponding to the content of courses in methodology at Psychology 1-3 at Stockholm University (see literature lists for these courses at www.psychology.su.se).

Learning outcomes

After completing the course, you are expected to have improved your ability to:

1. Identify and understand common threats to the validity of research claims, and assess how specific design elements can mitigate these threats

2. Understand and contribute to theoretical discussions of causality, causal inference and cause probing research designs

3. Evaluate strengths and limitations of empirical studies from a research-method perspective

4. Design an empirical study addressing a behavioral-science research question

5. Analyze research proposals and studies from an ethical perspective

Course content

The course will cover the following topics:
o Causal inference: Campbell's validity typology and Directed Acyclical Graphs
o Threats to validity: Confounding, selection, measurement and other sources of bias
o Cause probing research designs
o Data simulation using R
o Research ethics

Activities

The course consists of lectures, seminars, and group discussions linked to the individual assignment. Teaching will take place in real life, with no or limited use of on-line participation with zoom.

The lectures deal with behavioral science research methodology, including research ethics. Seminars and group discussions focus on specific methodological problems or research articles from a methodological perspective. To be able understand and participate in the

seminar discussions, you should have read the literature assigned to each occasion (see schedule on Athena).

Examination

After completing the course, you are expected to be able to:

Learning outcome 1:	Identify and understand common threats to the validity of research claims, and assess how specific design elements can mitigate these threats
Learning outcome 2:	Understand and contribute to theoretical discussions of causality, causal inference and cause probing research designs
Learning outcome 3:	Evaluate strengths and limitations of empirical studies from a research-method perspective
Examination:	Written exam (individual)

Learning outcome 4:	Design an empirical study addressing a behavioral-science research question
Examination:	Group assignment

Learning outcome 5:	Analyze research proposals and studies from an ethical perspective
Examination:	Written exam (one question dedicated to research ethics)

Type of examination	Grade	Form
Group assignment	0-3 points or fail (= revise)	Oral presentation using slide-show software
Written examination	0-30 points	Written exam on Athena

The written exam is scored 0 to 30 points. The group assignment is scored pass or fail (= revise), but up to 3 points may be awarded for excellence and be added to the exam score of each group participant. Together, the written examination and the individual assignment may give a *total score* of at most 30 + 3 = 33 points.

Grading Master level (PSMT58). The course is graded on the seven-point ECTS-scale (A, B, C, D, E, Fx, F). Grade A requires a *total score* of at least 27 points, B 24-26 points, C 21-23 points, D 18-20 points and E 15-17 points (F: < 15 points). In addition, grades A-E requires passed group assignment.

Grading Doctoral level (PS302FO). The course is graded "pass" or "fail". Grade "pass" requires a *total score* of at least 21 points. In addition, grade "pass" requires passed group assignment.

Literature

Articles will be uploaded on Athena:
10-20 theoretical articles,
10-20 empirical articles,
Texts on research ethics.

Schedule

Date, time and room: see Athena