Experimental Research Design
International Max Planck Research School

Location: 1st floor seminar room, Neubau
Time: 11AM – 12:30PM
Lecturer: Emily Cross

27. April: Research Methods in the Behavioral & Brain Sciences

Introduction
Goals of psychological research
- Science vs. pseudo-science
- From theory to hypotheses
- Defining variables

Correlational Research vs. Experimental Research
- 5 basic types of variables
- Correlation and causation

Measurement Principals
- Validity
- Reliability
- Measurement scales

4. May: Principals of Research Ethics and General Experimental Designs

Guiding Principals of Research Ethics
- Beneficence, autonomy, and justice
- Integrity of experiments and experimenters
- Assessment of risk

Selection & Implementation of Experimental Designs
- 4 basic design structures: costs and benefits of each
- Overview of research steps
- Manipulating the IV, measuring the DV
- Unexpected effects and confounds

11. May: Observational and Survey Research
Guest Lecturer: Barbara Vogt

Observational Research
- Qualitative vs. quantitative
- Naturalistic vs. systematic observation
- Patient studies, case studies, & archival research

Survey Research
- Writing questions: open- vs. close-ended
- Frequency scales
- Surveying subjective attitudes vs. objective information
- Random assignment vs. random selection

18. May: Order & Expectancy Effects, Developmental Designs, Quasi-Experiments

Order & Expectancy Effects
- Pitfalls in repeated-measures designs
- Randomization vs. counterbalancing

Developmental Designs
- Cross-sectional
- Longitudinal
- Sequential

Quasi-Experiments
- One group pre/post-test design
- Non-equivalent control groups design
- Time series designs
- Single case experimental designs
- Reversal & multiple baseline designs

25. May: Complex Research Designs; Final Summary & Review

Simple vs. Complex Designs
- Testing for differences in means & variance
- T-tests vs. ANOVAs

Factorial Research Designs
- Understanding factors and levels
- Multiplicative notation
- Independent groups, repeated measures, and mixed group designs
- Three-way factorial designs
- Main effects and interactions
- Tips for how best to illustrate findings from factorial designs

Final Summary & Review