

## Experimental Research Methods

### 1. Course format:

Five double sessions, to be offered in the third quarter (April-May)

### 2. Course coordinator:

Prof. Sebastian Hafenbrädl

### 3. Course abstract:

The objective of this course is to introduce doctoral students to experimental research methods. The overall aim of the class is to equip students with the knowledge and capacity to both conduct experimental research as well as interpret and critique others' experimental research. To achieve this aim, this class is divided into two main phases. In the first phase, students are designing an experiment related to their own research, which results in a "Stage 1 Registered Report" (see <https://cos.io/rr/> for an introduction to registered reports) – basically a (very short) manuscript including an introduction, theory, method, and proposed analysis of an experiment (but without results and discussion) that could theoretically be submitted to a journal. In the second phase, students can decide between three options, whether they want to a) revise and improve their experimental design (and thus their registered report), b) conduct their proposed experiment and present their results, or c) critique and interpret experiments from their classmates and/or that are already published in top management journals.

### 4. Course outline

**Session 1+2:** Why do we run experiments? We will cover the fundamentals of experimentation. We will discuss readings that introduce basic concepts in the design and collection of experiments. We will also get to know each other's research interests, and have some first thoughts on designing experiments related to the students' interests.

**Session 3+4:** How do we run experiments? This section will provide an opportunity to design an experiment related to students' research. Students will come to the third session with first ideas on a provisional experimental design that will be critiqued and refined by discussion with their classmates. Among other topics, the discussion will focus on data analysis and power concerns.

**Session 5+6:** How do we run experiments (II)? This section will provide an opportunity to refine students' proposed experimental designs. We will also dig deeper into theoretical and practical issues that arose in the context of students' experiment ideas.

**Session 7+8:** How do journals and reviewers see experiments? In this section, we will discuss prominently published experimental papers in the management literature. We will elaborate on best practices in different subfields, packaging and mixed-method papers, types of contributions and limitations of experiments. We will aim at applying some of the lessons to the students' proposed experiments.

**Session 9+10:** What have we learned about (and from) our experiments? In this section, we will have the opportunity for students to discuss their revised experimental designs or, in case they conducted the experiment, their results. In this context, we will reflect on the process of collecting and analyzing experimental data. More generally, we will also reflect on what you have learned about experimental research methods, and how this might improve both your experimental and non-experimental research.

## **5. Course requirements:**

Each student is required to complete and to be prepared to discuss all the required readings for each class session. Each student will also be required to prepare/think about specific contributions to the class discussion (specified below) and to submit an assignment (in three parts), due 48 hours before the respective session.

- **Preparation 1 (Session 1 & 2): Summary of Research Interests**
  - Be prepared to introduce yourself and your research interests in 2 minutes (your elevator pitch, think about what you want to say and in which order).
  - Be prepared to present one hypothesis that is based on your research interests, and that you believe can be tested in an experiment. Be prepared to discuss why this hypothesis is theoretically interesting, first ideas on how you would test it in an experiment, and what result would persuade you to reject this hypothesis.
- **Preparation 2 (Session 3 & 4): Experiment proposal first round**
  - Be prepared to present your proposed experiment again in (less than) 7 minutes (why is it interesting, what is the null hypothesis, what is your hypothesis, how are you going to test it).
- **Preparation 3 (Session 5 & 6): Experiment proposal second round**
  - Be prepared to present your (revised) proposed experiment in (less than) 7 minutes (quick recap on the contribution you plan on making with it, methodology, analysis plan including power analysis).
  - Each participant will be matched with another participant, and read their RR. Be prepared to give constructive feedback on this assignment.
- **Preparation 4 (Session 7 & 8): Experiment proposal third round**
  - Dependent on which option you chose, be prepared to shortly recap and then discuss the paper(s) you chose to evaluate, interpret and critique.
- **Preparation 5 (Session 9 & 10): Experiment proposal second round**
  - Dependent on which option you chose, be prepared to either present (in less than 7 minutes) your revised proposed experiment (quick recap on the contribution you plan on making with it, methodology, analysis plan including power analysis), or present your conducted experiment including results 7 minutes (quick recap on the contribution you make with it, methodology, analysis including power analysis, results).

Each student will also be required to submit their Registered Report (see below), in two steps, due 48 hours before sessions 3+4 and 5+6.

- **What is a “Stage 1 Registered Report”?**
  - “Registered Reports (RRs) are a form of empirical journal article in which methods and proposed analyses are pre-registered and peer-reviewed prior to research being conducted.” (from <https://cos.io/rr/>). In other words, a registered report is a proposal for an experiment that can be reviewed and in principle accepted by a journal before an experiment is conducted.
  - For the purpose of this course, the RR should consist of an abstract, and introduction (with at least 1 paragraph why the topic is interesting, 1 paragraph what is known in the literature, and 1 paragraph what the proposed study will contribute to that), a theory section (at least 1 paragraph describing what we would expect to happen in the experiment based on prior research, if the newly proposed theory is wrong, in other words the null hypothesis; 1 paragraph describing and motivating the newly proposed theory, and 1 paragraph developing at least 1 hypothesis from the theory that will be tested in the experiment), a method section (including a description of the procedure, materials, and power analysis, and an analysis plan that includes both hypothesis testing and exploratory analyses).
  - I don’t want to impose a lower or upper page limit for the RR, but assuming that each paragraph is about 200 words, you might want to aim for a 2000 words (~6 pages) document (150 words abstract, 600 words intro (3 paragraphs), 600 word theory (3 paragraphs), and ~750 words methods).
  - Please include an appendix with your experimental material (i.e., how the experiment will look to participants). If you already want to implement the experiment to be conducted online (e.g., on Qualtrics), just include screenshots of the different pages.
- **Assignment Part 1 (Session 3 & 4): First thoughts on the “Stage 1 Registered Report”**
  - The first part is an outline for your RR. Describe each paragraph you plan to write in one bullet point/sentence – in short, think about the RR and make notes. This part of the assignment will not be graded.
  - To get the maximum out of the class discussion/individual feedback, you are invited to prepare a few slides on your ideas of your experiment.
- **Assignment Part 2 (Session 5 & 6): “Stage 1 Registered Report”**
  - The second part of the assignment is a full version of the RR.
- **Assignment Part 3: You can choose among three options (hand-in dates will be discussed when you choose, most likely in Sessions 7&8 or Sessions 9&10):**
  - Option 1: You revise your RR (from part 2), incorporating feedback you received in class and lessons you draw from class discussions, seeing other students’ RRs, and readings. Obviously, the bar for the revised RR will be significantly higher than for part 2.
  - Option 2: If your RR from part 2 is (in my judgment) above the threshold that it would be more useful to actually conduct the experiment instead of further improving its design, you can go ahead and collect the data (if it can be done in the timeframe of the class, for instance online using Qualtrics. I will be happy to support you in the process). You will then follow-up on your RR, analyze the data in the way you proposed, write up the method section and a short discussion, and visualize the results in a figure.
  - Option 3: Instead of continuing with your own experiment based on your research interests, you can also switch perspectives and evaluate, critique and interpret the experiments of others. You will prepare a short discussion (10-15 minutes) of one or

two experimental papers that are published in a top journal (either that you selected based on your research interests or that I assigned to you).

**6. Grading:**

Assignment Part 1	0%
Assignment Part 2	30%
Assignment Part 3	30%
Class Participation	40%

**7. Readings:**

\*I recommend that you read the articles and chapters in the order in which they appear below.

Session	Title of Session & Readings
1 & 2	<p><b>Overview – Foundations of Experimental Research Methods</b></p> <p><b>READINGS</b></p> <ul style="list-style-type: none"> <li>• Wilson, T. D., Aronson, E., &amp; Carlsmith, K. (2010). The art of laboratory experimentation. <i>Handbook of social psychology</i>.</li> <li>• Singleton, R., &amp; Straits, B. (1999). <i>Approaches to social research</i> (Third Edition ed.). Oxford: Oxford University Press. Chapters 7 &amp; 8.</li> <li>• Morales, A. C., Amir, O., &amp; Lee, L. (2017). Keeping It Real in Experimental Research—Understanding When, Where, and How to Enhance Realism and Measure Consumer Behavior. <i>Journal of Consumer Research</i>, 44(2), 465–476.</li> </ul> <p><b>OPTIONAL READINGS</b></p> <ul style="list-style-type: none"> <li>• Mitchell, Gregory (2012), “Revisiting Truth or Triviality: The External Validity of Research in the Psychological Laboratory,” <i>Perspectives on Psychological Science</i>, 7 (2), 109-117.</li> <li>• Shadish, W. R., Cook, T. D., &amp; Campbell, D. T. (2002). <i>Experimental and quasi-experimental designs for generalized causal inference</i>: Wadsworth Cengage learning. Chapter 1 &amp; 14</li> <li>• Campbell, D. T., &amp; Stanley, J. C. (1966). <i>Experimental and quasi-experimental designs for research</i>. Boston: Houghton Mifflin Company. Chapter 5.</li> </ul>
3 & 4	<p><b>Experimental Design Basics</b></p> <p><b>READINGS</b></p> <ul style="list-style-type: none"> <li>• Nelson, L. D., Simmons, J., &amp; Simonsohn, U. (2018). Psychology’s Renaissance. <i>Annual Review of Psychology</i>, 69(1), 511–534.</li> <li>• Lakens, D., &amp; Evers, E. R. K. (2014). Sailing From the Seas of Chaos Into the Corridor of Stability: Practical Recommendations to Increase the Informational Value of Studies. <i>Perspectives on Psychological Science</i>, 9(3), 278–292.</li> <li>• Christensen, L. (2012). Types of designs using random assignment.</li> <li>• Hauser, O. P., Linos, E., &amp; Rogers, T. (2017). Innovation with field experiments: Studying organizational behaviors in actual organizations. <i>Research in Organizational Behavior</i>, 37, 185–198.</li> </ul>

	<p><b>OPTIONAL READINGS</b></p> <ul style="list-style-type: none"> <li>• Highhouse, S. (2009). Designing Experiments That Generalize. <i>Organizational Research Methods</i>, 12(3), 554-566.</li> <li>• Spencer, S., Zanna, S., &amp; Fong, G. (2005). Establishing a causal chain: Why experiments are often more effective than mediational analyses in examining psychological processes. <i>Journal of Personality and Social Psychology</i>, 89, 845-851.</li> <li>• Cohen, J. (1992). A power primer. <i>Psychological Bulletin</i>, 112(1), 155.</li> </ul>
5 -10	<p><b><i>After our first session, the readings for the remaining sessions will be updated based on the students' needs and interests.</i></b></p>

## Additional Selected Readings

### Overview

- American Psychological Association (2010) *Publication Manual of the American Psychological Association*, 6th Ed. DC: American Psychological Association.
- Pelham, B. W., & Blanton, H. (2006). *Conducting research in psychology: Measuring the weight of smoke* (3rd edition). Belmont, CA: Wadsworth.
- Rosenthal, Robert and Ralph Rosnow (2007), *Essentials of Behavioral Research: Methods and Data Analysis*. 3rd ed. New York, McGraw Hill.
- Shadish, William R., Thomas D. Cook, and Donald T. Campbell (2002). *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. Boston: Houghton Mifflin.

### Methods

- John, O. P. & Benet-Martinez, V. (2000). Measurement: Reliability, construct validation, and scale construction. In Reis, H. T., & Judd, C. M. (Eds.) *The Handbook of Research Methods in Personality and Social Psychology* (pp. 339-369). New York: Cambridge University Press.

### Survey Design

- Bergkvist, L., & Rossiter, J. R. (2007). The predictive validity of multiple-item versus singleitem measures of the same constructs. *Journal of Marketing Research*, 44, 175-184.
- Bradburn, Norman, Seymour Sudman and Brian Wansink (2004). *Asking Questions: The Definitive Guide to Questionnaire Design – For Market Research, Political Polls, and Social and Health Questionnaires*. CA: John Wiley and Sons.
- Krosnick, J. A., & Presser, S. (2010). Question and questionnaire design. In P. Marsden & J.D. Wright (Eds.), *Handbook of Survey Research* (Vol. 2, pp. 263–314). Bingley, UK: Emerald Group Publishing Limited.
- Nisbett and Wilson (1977), "Telling More than we can know: Verbal Reports on Mental Processes," *Psychological Bulletin*, 67, 356-367.
- Schwarz, Norbert (1999), "Self-reports: How the questions shape the answers," *American Psychologist*, February, 93-105.

### Analysis & Statistics

- Fitzsimons, Gavan J. (2008), "Death to Dichotomizing," *Journal of Consumer Research*, 35 (June), 5-8.
- Preacher, Kristopher J. and Andrew F. Hayes (2004), "SPSS and SAS procedures for Estimating Indirect Effects In Multiple Mediator Models," *Behavioral Research Methods, Instruments, and Computers*, 36 (4), 717-31.
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Hillsdale: Erlbaum.
- Honig, B., Lampel, J., Siegel, D., & Drnevich, P. (2017). Special Section On Ethics in Management Research: Norms, Identity, and Community in the 21st Century. *Academy of Management Learning & Education*, 16(1), 84-93. doi: 10.5465/amle.2017.0023