Course title: Experimental Research

Coordinator(s): Dr. Femke van Horen

Lecturer(s): Dr. Femke van Horen, Marketing department

Study period: February 2020 – March 2020 (Period 4)

ECTS: 6 ECTS

Tuition: € 600

Target Groups: The course Experimental Research is open to PhD candidates and research master students from the VU and other Dutch and international universities engaged in research projects broadly related to business and management or organization studies. This is an advanced methods course that assumes basic prior understanding of business and management or organization studies, and basic understanding of quantitative research methods.

Course objective: After the successful completion of this course, participants will be able to:

- Understand important concepts, tools, and technical skills needed for planning and designing laboratory experiments
- Understand the creative skill of experimentation and how to design and set up your own experiment
- Understand the principles and the logic of the following statistical techniques: Regression, Analysis of Variance, Analysis of Covariance, Contrast Analysis, Mediation Analysis, Moderation Analysis
- Understand issues related to statistical power and effect size, ethical research practices (both in terms of human subjects treatment and handling and reporting of data), replicability, and open science.
- Analyze the results from an experiment and how to interpret and report results obtained from an experiment, based on hands-on experience developed in this course.

Course content: Do people buy more on a website with calming or arousing colors, and may this be dependent on the type of product that is sold? Do people behave more or less sustainable when feeling uncertain due to, for instance, an
economic crisis and why? These are the kind of questions that we investigate as experimental researchers.

In this course you will learn how to do experimental research. Contrary to a survey, an experiment enables a researcher to test a hypothesized causal relationship between an independent variable (e.g., uncertainty) and a dependent variable (e.g., sustainable behavior) by manipulating the independent variable (e.g., imagining an uncertain vs certain situation). In this course, we will dig deeper into the different phases of designing and conducting an experimental study. First, we will discuss how to come up with specific hypotheses, ready to be tested in an experimental context. Second, we discuss how to design and conduct an experiment in which you manipulate independent variable(s), measure dependent variable(s), and control for extraneous variable(s). Third, we discuss how to analyze the results from an experiment, with the appropriate statistical tools (SPSS). Finally, we discuss how to interpret the results of an experiment, eliminate alternative hypotheses, and design a set of follow-up studies. These discussions are set against the backdrop of actual examples from practice and, in combination with your assignment, from your own research ideas.

**Teaching Methods** This course contains of seven workshop sessions, each consisting of four hours. The workshops will take place on Fridays from 9:00-13:00. The first half of the workshop will comprise of an input session during which the instructor will introduce students to the various aspects of experimental research. Throughout this part, students will be invited to engage in discussions. The second half of each workshop will comprise of a tutorial in which the students can get hands on experience on what we have covered in the class using short assignments. Please bring your own laptop with SPSS installed on it (SPSS can be installed for free with a campus licence).

During the course, the students will work on their own experiment. They will be asked to think of a research question, to set up the experiment, to run the experiment, and to analyse and discuss the results. During two workshops, the students will present their work and will get feedback, from both the lecturer and the students. In the first presentation, the students will present their idea (hypothesis, conceptual framework, experimental design, and possible confounds). In the second presentation, they will present the results and discussion of their experiment. The feedback should be used to improve the final report of the experiment. The presentations will be graded.
Assessment
The students will write a research report (introduction, methods, results, discussion) based on their experiment, including the analyses of the data. The final grade of the course will be based on this research report and the presentations.

Course structure
This is a very preliminary program and subjected to change.

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<tr>
<th>Date</th>
<th>Workshop</th>
<th>Tutorial</th>
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| 1 Friday 31.1.2020 13:00 - 17:00 | Basics of experimentation
Experimental designs
Experimental issues: Confounds | Qualtrics
How to handle your data |
| 2 Friday 7.2.2020 13:00 - 17:00 | Best research practices, Type I and Type II errors, power and effect size, open science
Intuition behind ANOVA | G-power
ANOVA
Simple effect tests |
| 3 Friday 14.2.2020 13:00 - 17:00 | Presentations Experiment: Intro and Method |
| 4 Friday 21.2.2020 13:00 - 17:00 | Post hoc tests and planned contrasts
Repeated Measures
ANCOVA | Planned contrasts
Mixed design
ANCOVA |
| 5 Friday 28.2.2020 13:00 - 17:00 | Mediation:
Simple and moderated mediation
Problems with mediation
Causal chain model | Mediation
Conditional Process |
| 6 Friday 6.3.2020 13:00 - 17:00 | Regression and Spotlight analyses | Spotlight and floodlight analyses |
| 7 Wednesday 11.3.2020 13:00 - 17:00 | Presentations Experiment: Results and General Discussion |

Literature
A list of articles will be announced via the course website on Canvas.