

**The Faculty of Psychology**  
**University of Bergen**  
Module in the training programme for researchers

Elective PhD Methodology Course offered by the Graduate School of  
Human Interaction and Growth (GHIG)

**Quantitative methods, topic 2: Experimental design and analysis**  
13-17 March 2014

Course leaders: Bjørn Sætrevik (UiB), Finn Konow Jellestad (UiB)

**Overview:**

Performing an experiment is the only research method suited for drawing causal inferences about a research question. By using an experimental design that provides a strict operationalization, randomization, control and manipulation of variables, we can perform statistical analyses that allow us to distinguish the signal from the noise, and identify causal and interactive relationships in our data set. This course will discuss the strengths and weaknesses of the **experimental approach**, describe the various components and different types of experimental designs. Group work sessions will discuss the issues and relate them to provided examples and your own data sets. Experiment programming software will be demonstrated and discussed. Principles of experimental data **analysis** will be presented, including how a data set is organized, what assumptions underlie various statistical tests, ANOVA, post-hoc testing and planned comparisons, as well as non-parametric statistics and calculation of effect size. A data set will be provided for hands-on assignments to be performed under supervision.

**Objectives:**

This course seeks to promote and facilitate the use of experimental approaches and good practices in designing and analysing experiments.

**Learning activities:**

Experimental designs and different analysis approaches will be presented in lectures and led discussions, small-group discussions, and guided workshops with assignments to be completed on individual computers. Some assignments will be performed in group discussions, while other assignments will assume that work is performed individually or in small groups, and presented in plenary on the last day of the course.

**Prerequisites:**

1. Participants must answer a brief questionnaire when signing up for the course, in order to provide information for adjusting the course topics and depth.

2. Participants must be prepared to present their research question and approach to data collection
3. On the first day of the course, the experiment programming software E-Prime will be demonstrated. Participants who would like to try out the software on their own computers, are recommended to download and install a trial version from [www.pstnet.com](http://www.pstnet.com)
4. On the second day of the course, there will be hands-on assignments in performing analyses on a provided data set. Participants must bring a laptop computer with the statistics software package Statistica installed. All university employees can download this software from <https://it.uib.no/Hovedside>

**Course literature:**

***Key Reading:***

Field, A. P., & Hole, G. (2003). *How to design and report experiments*. London: Sage publications.

Additional required and recommended literature will be announced after registration. To the extent possible, copies will be placed on the MySpace site for the course. Participants will be expected to have read a large portion of the recommended literature before the course starts.

**Preliminary time schedule:**

End of January 2014 – registration deadline with brief questionnaire

End of February 2014 – course literature available on My Space

13<sup>th</sup> of March, 2014 – seminar on experiment design

14<sup>th</sup> of March, 2014 – seminar on experiment analysis

17<sup>th</sup> of March, 2014 – seminar with presentation of group work and hands-on assignments

**Language of instruction:** English

**Registration:** Participants must register for the course by January 20, 2014. Maximum number of participants: 20.

**Assessment format:** Two oral presentations

**ECTs:** 1

**Course leader:** Bjørn Sætrevik and Finn Konow Jellestad

**Eligibility:** PhD students enrolled at the Faculty of Psychology (UiB) have priority; other participants are welcome as space permits. Places will be filled on a first-come-first-serve basis.

**Contact person:** Leah Junge: [leah.junge@hemil.uib.no](mailto:leah.junge@hemil.uib.no)