

## Abstract

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Biogram:

Izabela Krejtz is an associate professor of psychology at SWPS University of Social Sciences and Humanities, Warsaw, Poland. She is a recognized researcher in the field of cognitive psychopathology, educational psychology, and daily experience measured with the momentary ecological assessment. She is an author of several dozens of international scientific publications among which a large amount was based on eye tracking experiments. She regularly teaches experimental research methodology in the context of various eye tracking applications. Study Designs and Statistical Analysis in Eye Tracking Studies

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## EMPIRICAL RESEARCH METHODS

The goal of the lecture is to prepare participants to design a methodologically correct eye tracking study, correlational, quasi- or experimental. The second goal is to teach participants to match the study design with appropriate statistical analyses to answer specific eye tracking research questions. All examples of studies will refer to real eye tracking experiments published in peer-reviewed articles. Attendees require no prior experience in research methods to participate in the lecture.

The lecture will answer the following questions:

- How to formulate “testable” research hypothesis?
- How to differentiate between dependent vs. independent variable?
- How to design an experiment to answer research questions?  
Which study to run: correlational and quasi-experimental study vs. experiment?  
Which experimental design to choose: within-subjects, between-subjects, vs. mixed design?

### **Hands-on Session**

After the lecture attendees will participate in an eye tracking experiment. Working in groups of three, attendees take turns acting as investigator (i.e., instructing the participant, observing and recording data) and as participant (i.e., performing tasks as instructed).

### **STATISTICAL THEORY**

The lecture will focus on introducing attendees to statistical analysis with a variety of inferential statistical tests. The focus will be put on understanding interaction effects, simple main effects and simple effects. Concerning the later ones, different types of pairwise comparisons corrections (e.g., Bonferroni) will be introduced. Students during this part of the course will also learn how to describe the results of the analyses according to APA standards, which is one of the most widely used schemes in the scientific articles.

The lecture will introduce the following concepts:

- correlation coefficients
- linear regression analysis
- analysis of variance (ANOVA)
- interaction effects
- simple effects (post hoc vs t-tests)

There is no requirement of prior experience in statistics to participate in the course.