Statistics for the humanities: An introduction to theory, models, and their applications in R

Call for Participation

Soft Skills Graduate School of the Arts and Humanities | GSAH

Instructor:	Dr. Thomas Häussler, Oberassistent Institut für Kommunikations- und Medienwissenschaft, Universität Bern
Dates:	Mai 15 and 18, 2020, 10.15 am – 6.00 pm
Venue:	Universität Bern, Mittelstrasse 43, Raum 320
ECTS:	1.5 (Wahlpflichtbereich der GSAH)
Registration:	Until March 31, 2020 to: toggweiler@wbkolleg.unibe.ch as on KSL: https://www.ksl.unibe.ch/ (Login with UniBe-Account, search with title)

Content

This course provides an introduction to basic statistical theories and concepts, the most common descriptive and inferential models, and how they can be applied to real world data in the programming language R. The course presupposes <u>no</u> prior statistical knowledge and <u>no</u> prior knowledge of R.

Research in the humanities and the social sciences is increasingly driven by the application of statistical models. In addition to this, the "computational turn" in the humanities (Berry, 2011) means that the research workflow becomes more and more integrated in programming languages such as R or Python, through which data is collected, managed, analysed and visualised. This course provides a practical introduction that lies at the intersection of statistics and programming. It is specifically tailored to the needs of PhD students working in the humanities.

A statistical approach to research allows qualitative oriented researchers for instance to embed their projects in a basic descriptive background, visualise their data, and provide statistical support for their case selection. *Is the case I have selected for qualitative analysis particularly representative of the corpus? How are specific speech patterns distributed in my cases, and how do they look like in the overall corpus? Which patterns are particularly interesting?*

Quantitative researchers in turn can profit from being introduced to models that allow the testing of specific relationships in their data, e.g., *Does the use of metaphors go hand in hand with other discourse markers? Is the length of conversational pauses related to the local topic of discussion? Is there a significant difference between speech patterns of politicians with different ideological positions?*

The course applies statistical concepts in the programming environment R, which is quickly becoming one of the most flexible and powerful tools to design the research workflow and conduct statistical analyses. In this course, participants will learn to write their own code and run statistical models on example data sets. This should allow them to apply the acquired knowledge to their own projects.

Based on the research needs of the participants, the course will cover the topics below and deal with some in more detail:

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- Why should I use statistics at all?
- What are nominal and interval scales and why should we bother about them?
- Why are concepts such as reliability and validity important?
- What can we do with descriptive statistics?
- I want to explore my data visually – how can I plot it?
- Does my data fit to the statistical model?
- How can I test relationships? T-tests, correlations and OLS regressions
- What if my data does not conform to some of the statistical assumptions? Non-parametric test
- What kinds of test can I use if my data is categorical? Chi-square and Fisher's exact test
- What else is there in the statistical bag? Factor and cluster analysis

Taken together, the course follows a three-fold aim: (1) it introduces participants to statistical concepts and the mathematical theory behind them, (2) it details the workflow and the statistical analysis in R, and (3) provides students with the necessary knowledge to conduct their own analysis.

Prior to the workshop participants are asked to send (a) the research questions of their PhD projects and (b) possibly information about the kind of data they are using to the instructor: thomas.haeussler@ikmb.unibe.ch

Thomas Häussler studied lingustics, communication studies and political science. He is currently a post-doctoral researcher at the Institute of Communication and Media Studies at the University of Bern and works in the area of political communication. His research interests include social movements and digital mobilization in the networked public sphere, the fragmentation and polarization of the political space, and methodological aspects of computational approaches to digital political communication.

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