Statistics 1, Fall term 2021

Prior knowledge
The course assumes prior knowledge corresponding to the content of Borg & Westerlund (2012). Statistik för beteendevetare (3 ed.). Stockholm: Liber.

Learning outcomes
After completing the course, you will have improved your ability to:
1. summarize and visualize data,
2. estimate effect sizes and their uncertainty using conventional analytic methods and bootstrapping,
3. use probability theory to update beliefs (very basic introduction to Bayesian stats),
4. understand and use methods based on the general and generalized linear model,
5. plan and conduct statistical analyses of data, including data management, data screening, descriptive analysis, data visualization, and effect size estimation.
6. use the software R for analyzing real (and simulated) data

Course content
The course will cover the following topics:
- Data management and data screening
- Descriptive statistics and data visualization
- Very basic introduction to Bayesian inference
- Estimation and compatibility intervals
- General (and generalized) linear models
- Practical data analysis using R

Hybrid teaching: In real life and online
The course consists of lectures, seminars, and group discussions linked to the individual assignment. This year, teaching will take place in real life with possibilities for online participation (so called “hybrid” teaching). So it is up to you whether you participate in real life or online (using zoom). The lecture rooms are equipped for real time streaming of lectures and for interaction from online participants. Hopefully, this technology will work fine, so everyone may participate in the discussions.

Activities
The course consists of lectures and computer exercises. One seminar is devoted to the student’s presentations of their individual assignments.

Individual assignment
Task: (1) To write a Result section and a Conclusion section based on analyses of a selected data-set. Several data sets will be available. (2) Write R-code with all the analysis, and (3) Prepare a slide-show presentation and be prepared to present it at the last seminar. The written text, the R-code and the slide-show presentation should be submitted on Athena no later than 16.00 the day before the last seminar.
Examination

The course is graded on the seven-point ECTS-scale (A, B, C, D, E, Fx, F). The grade is based on the result of the written exam and on the quality of the individual assignment. The exam is scored from 0 to 20 points; a minimum of 10 points is required, if less, the exam has to be retaken. The individual assignment is scored from 0 to 10 points; a minimum of 5 points is required, if less, a revised version has to be submitted which will be given a maximum of 5 points. The scores from the written exam and the individual assignment are added to form a total score. Grade A requires a total score of at least 27 points, B 24-26 points, C 21-23 points, D 18-20 points and E 15-17 points (Fx 12-14 points, F < 12 points). Half scores are rounded upward, so a total score of, say, 23.5 would be rounded to 24 and be given grade B.

Literature

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Schedule (will be posted on Athena later on)