Introduction to Quantitative Methods –
2021-11-10

Instructor: Prof. Ingo Rohlfing, PhD
Office hours:
- Permanent Zoom room:
  - https://uni-koeln.zoom.us/j/9826670456
  - Meeting-ID: 982 667 0456
- Tuesday, 10.00-12.00
  - If you drop by unannounced, which you can, you might have to wait in the waiting room until the current running appointment is over. (just as with face-to-face appointments)
- Zoom by appointment. Please get in contact with me to agree on a time and date.

Room: Herbert-Lewin-Str. 2, 313.c (right next to the staircase at the South of the building)
Phone: +4922147089973
Email: i.rohlfing@uni-koeln.de

First lecture: 15.10.2021 // Last lecture: 03.12.2021
Time: 10.00-11.30
Format:
- In person
- Room: Hörsaal XIII, Hauptgebäude (main building)

Note on *ILIAS*: There are separate platforms for the lecture and the lab on ILIAS.
- Lab: We only use this for all material strictly related to the lab sessions, meaning the datasets, R scripts and all related files used during the labs.
- Lecture: Platform for all other material, including the assignments.

Registration for exam in KLIPS2 (for Master students). PhD researchers should send an email to cccp-sekretariat@wiso.uni-koeln.de instead.
Please also regularly check the CCCP information on teaching on the internet:
http://www.cccp.uni-koeln.de/en/public/teaching/

In this course, you learn about the fundamentals of frequentist quantitative analysis, including what 'frequentist' exactly stands for. This general goal subsumes a discussion of
- drawing repeated samples;
- statistical associations and correlations;
- statistical inference about quantities of interest such as the mean;
- the estimation and interpretation of regression coefficients of ordinary-least-squares (OLS) regression (the workhorse of regression analysis in political science and other fields);
- the visualization of quantitative results.

Data and empirical applications that we will use in class primarily focuses on political science. Throughout the course, students will become familiar with the statistical programming language R as a means to realize a quantitative analysis. The goal is to prepare students to critically interpret and conduct quantitative studies in political science.

Course plan

15.10.2021: First steps into quantitative analysis and intro to the course
Gravetter, Frederick J. and Larry B. Wallnau (2016): *Statistics for the Behavioral Sciences*. Australia; United States: Cengage Learning, Inc: chapters 1, 2, 3, 4.

22.10.2021: Distributions, sampling, frequentism and p-values
Gravetter, Frederick J. and Larry B. Wallnau (2016): *Statistics for the Behavioral Sciences*. Australia; United States: Cengage Learning, Inc: chapters 7, 8.

29.10.2021: Statistical significance, testing, and confidence intervals
Gravetter, Frederick J. and Larry B. Wallnau (2016): *Statistics for the Behavioral Sciences*. Australia; United States: Cengage Learning, Inc: chapters 8 (again), 9.

12.11.2021: Errors, power, substantive significance and group differences
Gravetter, Frederick J. and Larry B. Wallnau (2016): *Statistics for the Behavioral Sciences*. Australia; United States: Cengage Learning, Inc: chapter 9 (again), 10, 15.

19.11.2021: Correlation and bivariate regression
Gravetter, Frederick J. and Larry B. Wallnau (2016): *Statistics for the Behavioral Sciences*. Australia; United States: Cengage Learning, Inc: chapter 16.

26.11.2021: Multivariable regression I
Gravetter, Frederick J. and Larry B. Wallnau (2016): *Statistics for the Behavioral Sciences*. Australia; United States: Cengage Learning, Inc: chapter 16
Field, Andy, Jeremy Miles and Zoe Field (2012): *Discovering Statistics Using R*. London; Thousand Oaks, Calif: Sage Publications Ltd: section 7.7.

03.12.2021: Multivariable regression II
Field, Andy, Jeremy Miles and Zoe Field (2012): *Discovering Statistics Using R*. London; Thousand Oaks, Calif: Sage Publications Ltd: section 7.7 (again).
Note: It is not clear yet whether we will have sufficient time for interaction effects, but the plan is to include their discussion in the last session.
Brambor, Thomas, William R. Clark and Matt Golder (2006): Understanding Interaction Models: Improving Empirical Analyses. *Political Analysis* 14 (1): 63-82.
Berry, William D., Matt Golder and Daniel Milton (2012): Improving Tests of Theories Positing Interaction. *Journal of Politics* 74 (3): 653-671.
- The last two texts are a little bit harder on the statistical side because they are not from textbooks.

Exam and grading

- The exam in this course is the *portfolio exam*. Participants have to submit multiple assignments.
- The final grade depends on all assignments. The final grade is determined based on the sum of the points across all assignments and is graded using a 100-point scale (see below).
- Failing a single assignment does not have consequences. Only passing in the end matters.
- The assignments will be graded and returned to the participants with comments.
- All assignments have to submitted as R Markdown reports (you will learn what this is if you don't know them yet).
- Submissions have to be made on ILIAS.

Total number of points and final grade

Points	Grade
100-95	1
94.5-90	1.3
89.5-85	1.7
84.5-80	2
79.5-75	2.3
74.5-70	2.7
69.5-65	3
64.5-60	3.3
59.5-55	3.7
54.5-50	4
0-49	5

The assignment is about this article and its appendix:
Engler, Sarah, Palmo Brunner, Romane Loviat, Tarik Abou-Chadi, Lucas Leemann, Andreas Glaser and Daniel Kübler (2021): Democracy in Times of the Pandemic: Explaining the Variation of Covid-19 Policies across European Democracies. *West European Politics* 44 (5-6): 1077-1102.
https://doi.org/10.1080/01402382.2021.1900669
(henceforth referred to as Engler et al.)

You have to do four assignments in which based on what was discussed in the lecture and labs up to this point. The assignments are in preparation and will be released in due time.

	Deadline	Weight
1	02.11.2021, 12.00 (noon)	15 points
2	23.11.2021, 12.00 (noon)	15 points
3	07.12.2021, 12.00 (noon)	25 points
4	23.12.2021, 12.00 (noon)	45 points