

Lecture/Vorlesung

QUANTITATIVE METHODS IN SOCIAL SCIENCES

(Quantitative Methoden der Sozialwissenschaften)

300.230 (2SSt SE, SS 2014) 3 ECTS

Wednesdays 11h00-13h00 HS388 (RU42OG1.114)

COURSE DESCRIPTION

This class is an introduction to applied empirical research methods as practiced in social sciences, with an emphasis on political science. The aim of the course is to familiarize students with the conceptual and methodological challenges that arise when researchers attempt to measure social phenomena and demonstrate causal relationships between variables. Central topics covered in the class will include: levels of measurement, descriptive statistics, hypothesis testing, measures of association and the basic linear model.

This course aims to equip students with a “statistical toolbox” to use as he or she pursues the study of all things social. As well, the course is designed to provide undergraduates with the necessary skills to critically read and interpret the quantitative content of research in social science, and prepare them for more advanced techniques. No prior knowledge is required (except perhaps for a bit of high school math), but an open mind and some willingness to acquire new knowledge are important assets for success.

Class will meet every Wednesday from 11h00 to 13h00 in HS388 (RU42OG1.114) starting 05.03.2014 until 25.06.2014. This lecture and its evaluation will be conducted in English (some support will be offered in German for those who require it). I will make all the additional materials you will need for this course on the portal blackboard, within the limits of legality, of course.

Sprechstunde:

TBA

COURSE SCHEDULE

1. 5 March: Concepts, Indicators, Variables and Hypotheses
2. 12 March: Measurement/ Descriptive Statistics
3. 19 March: Introduction to Probability Theory and Univariate inference
4. 26 March: Cross-Tabulations and Statistical Significance
5. 2 April: CLASS CANCELLED
6. 9 April: Nominal and Ordinal-Level Measures of Association
7. 30 April: Examining the Effects of Control Variables
8. 7 May: Correlations (Pearson's r)
9. 14 May: The T-test/Anova
10. 21 May: Simple Linear Regression
11. 28 May: Linear Regression with Two/More Regressors
12. 4 June: Linear Regression: Diagnosing and Fixing Problems I
13. 11 June: Linear Regression: Diagnosing and Fixing Problems II
14. 18 June: Regression for Categorical Dependent Variables (Logit/Probit)
15. 25 June: FINAL EXAMINATION

REQUIREMENTS:

Class attendance is strongly recommended. Although attendance is not mandatory, you should know that class attendance is usually strongly correlated to performance in any given class. Material covered on the exam will come from lectures as well as the assigned readings. There will be a single final examination administered at the end of the semester (June 25).

This class is tailored for you to succeed. This should be easy to achieve if you come to class regularly, read the notes, and keep up with the readings. Even if this class is a lecture, I welcome students' questions and remarks about the topics we will cover.

A) READINGS:

I expect you to keep up on the weekly readings as we will discuss them in class. You will notice that some readings overlap considerably, thus it is up to you to select the readings that suit your interests/preference best. The readings will be made available to you online and at the library when possible.

B) CLASS NOTES

Most of the material you will need to be successful in the exam will be in the class notes. I will make these available on Blackboard before the class meets so you have time to print them and bring them to class.

TEXTS: *Main text

- *Jarol B. Manheim, Richard C. Rich, Lars Willnat, and Craig Leonard Brians, *Empirical Political Analysis*, Pearson Education, 6th edition.
- Earl Babbie, *The Practice of Social Research*. Wadsworth, Thomson Learning Inc, 9th edition.
- Janet Buttolph Johnson, Richard A. Joslyn, and H. T. Reynolds. *Political Science Research Methods*. 5th edition.
- David E. McNabb. 2004. *Research Methods for Political Science: Quantitative and Qualitative methods*.
- Salkind, Neil J. 2014. *Statistics for People Who (Think They) Hate Statistics*. Thousand Oaks: Sage.
- Debra Wetcher-Hendricks. 2011. *Analyzing Quantitative Data: An Introduction for Social Researchers*. John Wiley and Sons.
- Prem S. Mann. 2013. *Introductory Statistics*. John Wiley and Sons, 8th edition.
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READINGS AND CONTENT:

WEEK 1 (5 March): Concepts, Variables, Indicators and Hypotheses

Required readings:

- Jarol B. Manheim, Richard C. Rich, Lars Willnat, and Craig Leonard Brians. 2006. *Empirical Political Analysis: Research Methods in Political Science*. Pearson Education, 6th edition, chapter 2 + pp. 60-65, 71-72.
- Debra Wetcher-Hendricks. 2011. *Analyzing Quantitative Data: An Introduction for Social Researchers*. John Wiley and Sons, pp. 4-14.

Recommended:

- John Gerring. 2001. *Social Science Methodology: a Critical Framework*. Cambridge, Cambridge University Press, pp.35-61, chapter 4.
- Janet Buttolph Johnson, Richard A. Joslyn, and H. T. Reynolds. *Political Science Research Methods*. 5th edition, chapter 4.
- Earl Babbie, *The Practice of Social Research*. Wadsworth, Thomson Learning Inc., 9th edition, chapter 5.

WEEK 2 (12 March): Measurement/ Describing Variables

During this session we will look at the different levels of measurements, and get acquainted with descriptive statistics appropriate to each level of measurement (measures of central tendency, measures of dispersion).

Required readings:

- Jarol B. Manheim, Richard C. Rich, Lars Willnat, and Craig Leonard Brians. 2006. *Empirical Political Analysis: Research Methods in Political Science*. Pearson Education, 6th edition, pp. 66-71, Chapter 16.
- Larry Gonick and Wollcott Smith. 1993. *The Cartoon Guide to Statistics*. Chapter 2.

Recommended

- Janet Buttolph Johnson, Richard A. Joslyn, and H. T. Reynolds. *Political Science Research Methods*. 5th edition, chapters 6 and 11.
- Salkind, Neil J. 2014. *Statistics for People Who (Think They) Hate Statistics*. Thousand Oaks: Sage, chapters 2-3.
- Darrell Huff. 1993. *How to Lie with Statistics*. New York: W. W. Norton and Company. Chapter 2.

WEEK 3 (19 March): Introduction to Probability Theory and and Univariate Inference

(Estimating Sampling Error and Sample Size)

Required readings:

- Debra Wetcher-Hendricks. 2011. *Analyzing Quantitative Data: An Introduction for Social Researchers*. John Wiley and Sons, pp. 101-115.
- Jeremy Wilson, *Analyzing Politics: An Introduction to Empirical Methods*, pp. 70-83.

Recommended

- Peverill Squire. Why the 1936 Literary Digest Poll Failed. *The Public Opinion Quarterly*, Vol. 52, No. 1. (Spring, 1988), pp. 125-133.
- Darrell Huff. 1993. *How to Lie with Statistics*. New York: W. W. Norton and Company. Chapter 1 and 4.
- Prem S. Mann. 2013. *Introductory Statistics*. John Wiley and Sons, chapters 4 and 7.
- Larry Gonick and Wollcott Smith. 1993. *The Cartoon Guide to Statistics*. Chapter 3.

WEEK 4 (26 March): Cross-Tabulations and Statistical Significance

Required readings

- Jarol B. Manheim, Richard C. Rich, Lars Willnat, and Craig Leonard Brians. 2006. *Empirical Political Analysis: Research Methods in Political Science*. Pearson Education, 6th edition, pp. 268-81.
- Michael Corbett and Michael K. Le Roy. *Research Methods in Political Science*. 5th Ed., pp. 157-164 and 178-189.

Recommended

- Salkind, Neil J. 2014. *Statistics for People Who (Think They) Hate Statistics*. Thousand Oaks: Sage, chapter 17.
- Debra Wetcher-Hendricks. 2011. *Analyzing Quantitative Data: An Introduction for Social Researchers*. John Wiley and Sons, chapters 2 and 5.
- Prem S. Mann. 2013. *Introductory Statistics*. John Wiley and Sons, chapter 11.

WEEK 5 (2 April): class cancelled

WEEK 6 (9 April): Nominal and Ordinal-Level Measures of Association

Required readings

- Jarol B. Manheim, Richard C. Rich, Lars Willnat, and Craig Leonard Brians. 2006. *Empirical Political Analysis: Research Methods in Political Science*. Pearson Education, 6th edition, pp. 268-81.
- Janet Buttolph Johnson, Richard A. Joslyn, and H. T. Reynolds. *Political Science Research Methods*. 5th edition, chapter 12.

WEEK 7 (30 April): Examining the Effects of Control Variables

Required readings

- Chava Frankfort-Nachmias and David Nachmias, *Research Methods in the Social Sciences*. 5th Ed., pp. 426-40 (Control, Elaboration and Multivariate Analysis)
- Earl Babbie and Lucia Benaquisto, *Fundamentals of Social Research*, 1st Canadian Ed., pp. 428-439.
- Michael Corbett and Michael K. Le Roy, *Research Methods in Political Science*, 5th Ed., pp. 219-228.

WEEK 8 (7 May): Correlations

Required readings

- Debra Wetcher-Hendricks. 2011. *Analyzing Quantitative Data: An Introduction for Social Researchers*. John Wiley and Sons, chapter 8.

Recommended

- Salkind, Neil J. 2014. *Statistics for People Who (Think They) Hate Statistics*. Thousand Oaks: Sage, chapter 15

WEEK 9 (14 May): The T-test/Anova

Required readings

- Salkind, Neil J. 2014. *Statistics for People Who (Think They) Hate Statistics*. Thousand Oaks: Sage, chapters 11-13
- Debra Wetcher-Hendricks. 2011. *Analyzing Quantitative Data: An Introduction for Social Researchers*. John Wiley and Sons, chapter 6.

WEEK 10 (21 May) Simple Linear Regression

(Theory, assumptions)

Required readings

- Lawrence C. Hamilton. 1990. *Modern Data Analysis*. Books/Cole, chapter 14.
- Prem S. Mann. 2013. *Introductory Statistics*. John Wiley and Sons, chapter 11.
- Larry Gonick and Wollcott Smith. 1993. *The Cartoon Guide to Statistics*. Chapter 11.

Recommended

- Salkind, Neil J. 2014. *Statistics for People Who (Think They) Hate Statistics*. Thousand Oaks: Sage, chapter 16
- Lawrence C. Hamilton. 1990. *Modern Data Analysis*. Books/Cole, chapter 15.

WEEK 11 (28 May) Linear Regression with Two/More Regressors

(Goodness of fit, dummy variables, conditional hypotheses)

Required readings

- William D. Berry, Stanley Feldman. 1985. *Multiple Regression in Practice*. Thousand Oaks: Sage, Chapter 1
- Lawrence C. Hamilton. 1990. *Modern Data Analysis*. Books/Cole, chapter 15.

Recommended

- Lawrence C. Hamilton. 1990. *Modern Data Analysis*. Books/Cole, chapter 14.
- Janet Buttolph Johnson, Richard A. Joslyn, and H. T. Reynolds. *Political Science Research Methods*. 5th edition, pp. 417-428

WEEK 12 (4 June) Linear Regression: Diagnosing and Fixing Problems I

(Omitted variable bias, multicollinearity, heteroscedasticity)

Required readings

- William D. Berry, Stanley Feldman. 1985. *Multiple Regression in Practice*. Thousand Oaks: Sage, Chapters 2, 4, 6.

Recommended

- Peter Kennedy. 1998. *A Guide to Econometrics*. Cambridge: The MIT Press, 4th Edition, chapters 6-11

WEEK 13 (11 June) Linear Regression: Diagnosing and Fixing Problems II

(Outliers and influential observations, non-linearity, power transformations)

Required readings

- William D. Berry, Stanley Feldman. 1985. *Multiple Regression in Practice*. Thousand Oaks: Sage, Chapters 5.
- Lawrence C. Hamilton. 1990. *Modern Data Analysis*. Books/Cole, chapter 6.

Recommended

- Peter Kennedy. 1998. *A Guide to Econometrics*. Cambridge: The MIT Press, 4th Edition, chapters 6-11

WEEK 14 (18 June) Regression for Categorical Dependent Variables (Logit/Probit)

Required readings

- Janet Buttolph Johnson, Richard A. Joslyn, and H. T. Reynolds. *Political Science Research Methods*. 5th edition, pp. 429-448.

Recommended

- Scott Menard. 2002. *Applied Logistic Regression Analysis*. Thousand Oaks, Sage, chapters 1-3.

WEEK 15: FINAL EXAMINATION