

National Research University «Higher School of Economics»

“Data Analysis in Social Sciences”

Course syllabus

Master’s Programme “Politics, Economics and Philosophy”

Head instructor	E. Yureskul, PhD, senior lecturer eyureskul@hse.ru
Credits	6
Contact Hours	96
Self-study Hours	132
Year	1
Educational format	Without online-courses

1. Course description

Prerequisites

This course is based on prior knowledge obtained by students during the study of the following disciplines:

- Mathematics
- Political Science
- Economics

Abstract

The goal of this course is to introduce students to data analysis methods and procedures commonly used in social sciences. During the course, students will acquire practical skills to be able to gather, generate, visualize and analyze quantitative data in social science research.

2. Learning Objectives

The main goal of the course is to familiarize students with a variety of data analysis methods which should be useful in quantitative research. The course is aimed at developing a data-driven mentality through understanding data fundamentals, as well as areas of application for

different analytical methods and approaches. Students should be able to understand the limitations, value added and heuristic mechanisms of different data analysis methods.

3. Learning Outcomes

As a result, students should:

Know:

- The general structure of research design;
- methodology and methods of empirical research;
- advantages and limitations of different analytical approaches;
- basics of statistical analysis.

Be able to:

- Identify the best data sources
- Gather, generate, aggregate and visualize qualitative and quantitative data;
- Identify the correct method for a given research task;
- Apply acquired knowledge about research methods and techniques to their own works;
- Build their own research in accordance with given methodological requirements;
- Use the R package to analyze data

Have:

- Experience with applying empirical methods to data
- Working skills of empirical research in social science

4. Course Plan

No.	Topic	Total hours	Lecture hours	Seminar hours	Self-study hours
1	Data analysis: an introduction	14	4	0	10
2	Data sources and databases	16	4	0	12
3	Data visualization	14	2	2	10
4	Random variables: an application of statistics to social science data	14	2	2	10
5	Data Structure and Clustering	14	2	2	10
6	Confidence intervals and hypothesis testing	20	4	6	10
7	Statistical inference: correlation and cross-tabulation	16	2	4	10
8	Hidden data structure and Factor Analysis	14	2	2	10
9	Regression models in social sciences	24	6	8	10
10	Network analysis in social sciences: basic concepts	22	4	8	10
11	Quantitative modelling in social sciences	18	6	2	10
12	Productivity analysis in social sciences	24	6	8	10
13	Text as data in social sciences	18	4	4	10
	Total hours	228	48	48	132

5. Reading list

Required reading:

Creswell, J. W. Qualitative inquiry & research design: choosing among five approaches / J. W. Creswell. – 3rd ed. – Los Angeles [etc.]: SAGE Publications, 2013. – 448 с. – На англ. яз. - ISBN 978-1-412-99530-6.

Creswell, J. W. Research design: qualitative, quantitative, and mixed methods approaches / J. W. Creswell. – 4th ed. – Los Angeles [etc.]: SAGE Publications, 2014. – 273 с. – На англ. яз. - ISBN 978-1-452-27461-4.

Recommended reading:

Danielle Navarro. Learning statistics with R: A tutorial for psychology students and other beginners (Version 0.6). Available at: <https://learningstatisticswithr.com/lsr-0.6.pdf>

Bruce PC, Bruce A. Practical Statistics for Data Scientists : 50 Essential Concepts. First edition. Sebastopol, CA: O'Reilly Media; 2017.

Further reading:

Coppock, A. and D. Green (2015). Assessing the Correspondence between Experimental Results Obtained in the Lab and Field: A Review of Recent Social Science Research. *Political Science Research and Methods* 3 (1): 113 – 131.

Schrodt, P. (2014). Seven Deadly Sins of Contemporary Quantitative Political Analysis. *Journal of Peace Research* 51 (2): 287 – 300.

Gerber, A.S. and D. P. Green (2011). Field Experiments and Natural Experiments. in Goodin, R.E. (ed.). *The Oxford Handbook of Political Science*. New York: Oxford University Press.

Duo, E., R. Glennerster, and M. Kremer (2006). Using Randomization in Development Economics Research: A Toolkit. NBER Technical Working Paper 333. Available at: <https://www.nber.org/papers/t0333>

Coelli, T.J., Rao, D.S.P., O'Donnell, C.J. and Battese, G.E., 2005. An introduction to efficiency and productivity analysis. Springer Science & Business Media.

[Электронный ресурс] Режим доступа:

<http://web.a.ebscohost.com/pfi/detail/detail?vid=2&sid=af8e68ad-4545-47e9-bf93-2b6e0bad1ae4%40sdc-v-sessmgr05&bdata=JnNpdGU9cGZpLWxpdmU%3d#AN=edp282265&db=edspub>

Мангейм, Д. Б. Политология. Методы исследования / Д. Б. Мангейм, Р. К. Рич; Пер. с англ. Т. Л. Ветошкина, Н. И. Лауфер; Общ. ред. А. К. Соколова. – М.: Весь Мир, 1999. – 544 с. - ISBN 5-7777-0024-1.

Ядов, В. А. Стратегия социологического исследования: Описание, объяснение, понимание социальной реальности / В. А. Ядов, В. В. Семенова. – М.: Добросвет, 2000. – 596 с. - ISBN 5-7913-0036-0.

6. Grading

The grade for the course consists of the following components:

- Seminar activity: 20%
- Tests: 20%
- Research project: 20%
- Exam: 40%

For each seminar, students will be asked to perform a number of practical tasks related to research methods. In addition, students will be offered written tests during lectures or seminars. Students will also be asked to conduct a research project at home using social sciences data. The final form of control is a practical examination.

The final grade for the course is equal to the cumulative grade. Estimates for all forms of control are set on a 10-point scale. The method of rounding the grade: arithmetic ($> 0.5 = 1$).

7. Assessment criteria

Sample written test and exam questions:

Which methods allow to derive statistical inference for different variable types? Provide at least two examples.

Describe the limitations of linear regression analysis when applied to social sciences data.

Describe the advantages of social network analysis for social sciences.

Research project assessment criteria:

For the research project, students will be asked to analyze a sample dataset using any combination of methods discussed in the course. The project will be graded based on the following criteria:

- Theory-based research problem
- Usage of a sufficient data sample
- Appropriate selection of methods
- Relevant conclusion

8. Methods of Instruction

Along with the traditional forms of conducting classes - lectures and seminars, the following educational technologies are used:

- Group work based on seminar materials
- Group practice exercises using analytical software

9. Special Equipment and Software Support

When preparing for classes, it is recommended to use the HSE electronic resources.

Lecture classrooms should be equipped with:

- PC with Internet access
- Multimedia projector with remote control

Seminar classrooms should be equipped with:

- Personal computers with the following software installed:

Software	Access Terms
Microsoft Windows 7 Professional RUS Microsoft Windows 10 Microsoft Windows 8.1 Professional RUS Microsoft Office Professional Plus 2010 R-Studio	From the university's internal network