Introduction to Quantitative Research (SOC2019)
Module outline 2015

Dr Alexey Bessudnov

17 September 2015

1 Practical arrangements

Lectures (Dr A Bessudnov):

- Thursday, 15.30-17.00, Forum Exploration Lab 1

On 12 November we will have two lectures, at 10am and 3.30pm. There will be no lecture on 19 November.

Computer workshops (Dr E Kolpinskaya):

- Group 1: Monday, 9.30-10.30, Queens room M
- Group 2: Wednesday, 10.30-11.30, Queens room M

Office hours:

- Dr A Bessudnov (Amory 318)
  - Monday, 10-11am
  - Thursday, 5-6pm
- Dr E Kolpinskaya (Amory B202)
  - Tuesday, 12am-1pm

Emails:

- `A.Bessudnov@exeter.ac.uk`
- `E.Kolpinskaya@exeter.ac.uk`

Learning quantitative methods is similar to learning a foreign language: the process is incremental. Therefore, missing classes and in particular computer workshops in this module bears more risks than usual. If you miss two and more computer workshops in a row you are unlikely to be able to catch up with the rest of the class and will not do well in the test.

2 Aims of the module

The aim of this module is to introduce you to contemporary quantitative research in the social sciences. The amount of social data available to researchers and analysts both in the academia and outside it has increased dramatically in the last decades. In this course you will learn how to design a quantitative study, collect data, conduct basic statistical analysis and avoid common mistakes in interpreting the results. These are important skills for every social science graduate, and employers often demand them. Besides, these skills are useful for writing a third-year dissertation, particularly if it has a quantitative component.

At the lectures we will discuss key concepts and methods in quantitative social science, including relatively new developments such as big data and integration of genetic and social research. Computer workshops (taught by Dr Ekaterina Kolpinskaya) have a more applied focus and essentially are a course on basic statistical data analysis using SPSS, a popular statistical software package.

3 Assessment

The final mark for this module is a weighted average of the marks for a final report (50%) and a multiple choice test in the end of the module (50%).

Please submit your report electronically using eBART. The deadline is Tuesday 24 November, 2pm. According to the university's policy, you will receive your marks and feedback by 8 January. Please do not contact us about marks and feedback before this date.

The multiple choice test will be conducted in the class in week 12, on 10 December. It will test your knowledge of basic statistical data analysis from computer workshops. We will give you a short practice quiz one week before the test.

For the final report you will have to describe in detail the design

of the European Social Survey (ESS) and conduct a simple statistical analysis of the data answering one of the questions that we will offer you. Details will be uploaded on ELE separately. The report must be approximately 2,500 words long, tables and figures included. Making it slightly shorter or slightly longer is fine as long as the difference is under 250 words.

Late submissions up to two weeks after the deadline will be capped at 40%. Submissions that are late for more than two weeks will not be accepted.

You must be the sole author of the report you submit. Please refer to the ELE module on academic honesty and plagiarism for more information about plagiarism and how to avoid it: `http://vle.exeter.ac.uk/mod/imscp/view.php?id=104743`. You can also discuss this with me or with your academic tutor if you are in doubt.

4 Syllabus plan

Lectures:

1. Introduction. What is quantitative research and why we need it?
2. Surveys 1. Sampling
3. Surveys 2. Types of surveys. Total survey error and its components
4. Surveys 3. Questionnaires. Modes of data collection. Secondary data analysis
5. Measurement. Reliability and validity
6. Experiments 1. Correlation and causation. Field experiments
7. Experiments 2. Laboratory and internet experiments
8. Experiments 3. Natural experiments
9. Big data
10. Social networks
11. Quantitative genetics and social science

Computer workshops:

1. Data. Variables and cases. Types of variables

2. Describing data. Frequency tables. Mean and median
3. Distributions. Variance and standard deviation. Normal distribution
4. Basic graphs
5. Statistical inference. Sampling distribution
6. Confidence intervals
7. Hypothesis testing
8. Comparing means in two independent samples
9. Contingency tables
10. Correlation
11. Revision

5 Reading list and online resources

There is no single textbook that covers all the material in this module or even a substantial part of it. Bryman in *Social Research Methods* (4th ed.) discusses some topics, in particular the nature of quantitative research and measurement (ch.7) and sampling (ch.8). However, the part on statistical data analysis (ch.15-16) is very brief and is unlikely to be very helpful. You should not rely on Bryman's textbook only for your reports and preparation for the test.

Lecture 2 on sampling

- F.J.Fowler, Survey Research Methods, 4th or 5th ed., ch.3.

Lecture 3 on survey errors

- F.J.Fowler, Survey Research Methods, 4th or 5th ed., ch.1-2, 4.

Lecture 4 on questionnaires and interviewing

- F.J.Fowler, Survey Research Methods, 4th or 5th ed., ch.5-8.

Lecture 5 on measurement

- E.G.Carmines & R.A.Zeller. (1979). Reliability and Validity Assessment. Sage.

Lecture 6 on field experiments

- A.Gerber & D.P.Green. (2012). Field Experiments. Design, Analysis and Interpretation. W.W.Norton & Company. Ch.1-2.

Lecture 7 on lab and internet experiments

- M.Webster & J.Sell (Eds.). (2014). Laboratory Experiments in the Social Sciences. 2nd ed. Elsevier. Ch.1,8, 13, 15.
- M.Salganik & D.Watts. (2009). Web-based experiments for the study of collective social dynamics in cultural markets. Topics in Cognitive Science 1(3): 439-468.

Lecture 8 on natural experiments

- T.Dunning. (2012). Natural Experiments in the Social Sciences. A Design-Based Approach. Cambridge UP. Ch.1-4.

Lecture 9 on big data

- V.Mayer-Schoenberger & K.Cukier. (2013). Big Data: A Revolution That Will Transform How We Live, Work and Think. John Murray.

Lecture 10 on social networks

- D.Easley & J.Kleinberg. (2010). Networks, Crowds, and Markets: Reasoning About a Highly Connected World. Cambridge UP. Ch.1-4.

Lecture 11 on genetics and social science

- R.Plomin et al. (2012). Behavioral Genetics. 6th ed. Worth Publishers. Ch.6-8.

Computer workshops

- A.Agresti & B.Finlay. (2014). Statistical Methods for the Social Sciences. 4th ed. Pearson.
- A.Field. (2013). Discovering Statistics Using IBM SPSS Statistics. 4th ed. Sage.
- J.Pallant. (2010). SPSS Survival Manual: A Step By Step Guide to Data Analysis Using SPSS. Open University Press.

Apart from this, there is a lot of information about statistical data analysis and SPSS on the internet. Just google your question and you will likely find an answer. For example, the University of California Los Angeles has a good online resource on SPSS: `http://www.ats.ucla.edu/stat/spss/`, but there are many other resources as well.