Quantitative Data Analysis with SPSS

Professor Cristina Iannelli *(Course Organiser)*

Credit Rating 20 credits, SCQF 11

Course Description

This course will provide postgraduate students with an introduction to the main statistical concepts and techniques of analysis of quantitative data used in education and more widely in social sciences. It is addressed to students who have little or no experience of using quantitative data and it aims to enable students to develop an understanding of basic and intermediate quantitative methods and the ability to use these methods. Moreover, the course will support students in learning the statistical programme SPSS.

Learning Outcomes
On completion of this course, students will be able to:

- Understand the links between theory and method and the potential and limits of quantitative evidence

- Know how to produce and interpret basic statistics, especially data in tables

- Master descriptive and exploratory data analysis techniques

- Understand the difference between correlation and causation

- Have experience of working with data sets

- Be able to understand and apply a range of quantitative methods

- Be able to interpret the results of statistical analyses

- Have experience in using the computer software SPSS for all the statistical analyses covered by the course.

Teaching
The course runs over semester 1 and semester 2 and the class meets every two weeks. The course has 25 hours of contact teaching time. This will be delivered in eight 2.5-hour classes, two 1.5-hour classes and one 2-hour class.

The course will use a blend of self-study materials and activities, lectures and practical training. During the fortnightly classes the tutor will give short lectures, support students in practical exercises and discuss specific applications of quantitative methods of data analysis drawing from published academic papers or reports.

Students are expected to engage fully and consistently with the course by working through the on-line material, doing the readings and exercises set in advance and attending the fortnightly classes.

Course Assessment

At the end of semester 1, students will carry out a short piece of research using secondary data aimed at demonstrating an understanding of the use of quantitative data in empirical research enquiry and the acquisition of basic statistical skills. The successful completion of this task will give them access to the second part of the course.

The final assignment, at the end of semester 2, will consist of an original piece of research conducted by the students on secondary data provided by the tutor (or, with the tutor's prior agreement, based on the student's own data). Students will formulate their own research question(s) and select the appropriate techniques of analyses to address their question(s). The assignment will include: (1) a commentary on which techniques were used, for which purpose and why; (2) results of the application of the techniques; (3) a discussion of the results which will include description and interpretation of the results and a discussion of the implications of the results for the original research question.

The word limit is 3,000 words (excluding tables, graphs and references).

Course Content

- Introduction – The nature of data and first steps with SPSS

- First descriptive statistics (frequencies, proportions and percentages)

- Measures of central tendency and dispersion

- Relationship between variables (1): correlation and regression

- Relationship between variables (2): measuring association using tables

- Critical examination of published papers and support session

- The normal distribution

- From sample to population and hypothesis testing

- Data modelling: multiple regression

- Critical examination of published papers

- Data modelling: logistic regression

Readings

The main textbook for the course is Fielding, J. and Gilbert, N. (2006), *Understanding social statistics*, London: Sage. (2nd Edition)

It is strongly advised that you purchase a copy of the textbook.

The book website is: http://cress.soc.surrey.ac.uk/~scs1ng/uss/index.html From this website students will download datasets, exercises and statistical tables which will be used during the course.