UNIVERSITY OF OXFORD
Department of Politics and International Relations
Honours School of Politics, Philosophy and International Relations

Honour School of Philosophy, Politics and Economics
Honour School of Modern History and Politics

Statistical Methods in Social Science (226) Part C

Academic Year 2000

Course Provider: Dr. Robert Andersen, Department of Sociology

Please contact Dr. Andersen with suggested additions to, or corrections of, items on the list or with any enquiries about teaching for the paper.
Email: robert.andersen@sociology.oxford.ac.uk

Teaching Arrangements
Part C lectures are given in Hilary Term. These classes are a mixture of exposition and hands-on data analysis. Lectures will normally be accompanied by a series of 4 tutorials.

Lecturer for Part C: Mr. Kenneth Macdonald, Nuffield

Tutors for Part C:

Dr. R. Andersen (Department of Sociology)
Dr. T.W. Chang (Department of Sociology)
Dr. S. Fisher (Nuffield)
Mr. K. Macdonald (Nuffield)
Dr. D. Robertson (St Hugh's)

Subject to approval, certain graduate students and others may teach the course. The names and colleges of such tutors are printed in the Tutorial Register, a copy of which is available from the Politics Secretary at the Department of Politics and in electronic form at the politics website.

Content and Structure
The formal rubric for the Statistical Methods in Social Science paper is set out in the current edition of the Examination Decrees and Regulations:
Candidates will be required to answer four questions. Each candidate at least one question from Part A and at least one question from either Part B (if offering it as an Economics option) or Part C (if offering it as a Politics option). Candidates will be expected to show knowledge of the following topics:

**Part A (Statistical Theory)** Probability (concepts of probability, probability laws, Bayes' theorem); random variables (moments, sums and differences of random variables, frequency and cumulative distributions, joint random variables, conditional and marginal distributions); distribution theory (standard distributions including the binomial, Poisson, and normal distributions); measures of association (correlation, rank correlation, and multiple correlation); hypothesis testing (concepts of hypothesis testing, size and power, use of normal, t, chi square and F distributions); sampling theory (including properties of estimators); linear models (including regression, analysis of variance, logistic and loglinear models).

**Part B (Economic Statistics)** (questions may be asked which involve simple calculations). Applications of the theory defined by Part A to economic topics which may be drawn from areas related to the scope of the Microeconomics and Macroeconomics papers; the preparation and presentation of economic statistics (histograms, seasonal adjustment, issues relating to data quality); index numbers (including Paasche, Laspeyres and Divisia indices); size distributions (including measures of concentration, inequality and poverty).

**Part C (Politics and Sociology).** Application of the theory defined in Part A to social and political research, with reference to the problem of collection, analysis, and interpretation of data arising in the fields of electoral behaviour, social stratification, and comparative social policy.

**Objectives**

The paper provides an opportunity for undergraduates, whether in History and Economics, PPE, Economics and Management of Engineering (or Materials) Economics and Management to acquire the standard tools of the practising statistician. Every candidate taking the paper is expected to study the theory section, examined by a choice of quantitative problems. In addition candidates must choose at least one question from the two sections of applied essays, one based on Economics (Part B) and the other based on Politics and Sociology (Part C).

The major topics which students cover in Part C include:

- Advantages and disadvantages of different types of sampling
- Pros and cons of ecological inference
- Comparative social and political research
- Path analysis and causal inference
• Methods for studying the impact of political events on public opinion
• Methods of studying class voting
• Methods for studying class inequalities

Course Assessment
The course is assessed by means of a three-hour unseen examination according to the provisions established in the Examination Decrees and Regulations 2000, a copy of which has been issued to each undergraduate student in the Politics Department. Further details are available in the PPE Handbook, and Essential Information for Students, copies of which have been issued to each undergraduate and are also available on the politics website.
READING LIST

Tutorial topics
Background readings provide the necessary foundations for the topic readings, and thus should be read first. If you have only limited time, you should at least read the starred readings, but ideally all readings should be attempted.

1. Advantages and disadvantages of different types of sampling
Q. “Should opinion polls use probability samples rather than quota samples?”

Background reading:

Topic readings:
2. **Debate over the problem of ecological inference**

Q. “Does the ecological fallacy mean that it is always better to use individual-level data rather than aggregate-level data?”

**Background reading:**


**Topic Readings:**


3. **Comparative Research**

Q. “What are some of the problems with doing comparative social and political research? How can we best overcome them?”


4. Path analysis and causal inference

Q. “Does path analysis enable us to make causal inferences from survey research?”

**Background readings:**


**Topic readings:**


5. Methods for studying the impact of political events on public opinion

Q. “Why do Norpoth and Sanders reach such different conclusions about the magnitude of the ‘Falklands effect’?”

**Background reading:**


**Topic readings:**


6. Methods for studying class voting

Q. “How has the use of odds ratios changed our understanding of class de-alignment?”

Background reading:


Topic readings:


7. Methods for studying class inequalities

Q. “Do different methods of measuring class inequalities in education give different results. If so, why”

Background reading:


Topic Readings:


