UNIVERSITY of GUELPH

DEPARTMENT OF
POLITICAL SCIENCE

POLS 3650: Quantitative Methods of Data Analysis

Credit Weighting: 0.5

Pre-/Co-Requisites: 1 of POLS*2650, POLS*3180, SOAN*2120

Restrictions: Registration in CJPP, Political Science (major, minor, or area of concentration), JLS, or IDEV (major only)

INSTRUCTOR INFORMATION

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GENERAL DETAILS

This course continues the discussion started in POLS*2650 and offers an introduction to quantitative methods of data analysis. It discusses how political scientists can look for evidence by using numbers. Some find this approach challenging at first. But a firm grasp of statistical techniques is indispensable for any student of politics. Not only is it useful in preparing future research projects, it also enables one to evaluate the methodological choices in other people's work. Unfortunately, researchers, journalists and politicians often get away with biased findings and faulty conclusions simply because the audience is too intimidated by the statistics that are brought forward as 'evidence'. This course aims to make such statistics look less intimidating, and therefore enable students to critically engage most quantitative information they encounter. The majority of the class is dedicated to the logic of statistical inference and the statistical techniques that are most commonly used in political science.

LEARNING OBJECTIVES

At the end of the course, successful students will be able to:
• Interpret basic univariate and bivariate statistics, in particular the mode, median, mean, index of qualitative variation, variation ratio, quartile range, standard deviation, lambda, Cramer's V, Kendall's tau, Pearson's r, z, t, and chi-square.
• Evaluate univariate and bivariate analysis, in particular the appropriateness of a statistical operation for a specific research problem.
• Understand the main purpose of multivariate analysis, in particular the principle of 'controlling' for a third variable.
• Understand the Central Limit Theorem and the logic of statistical inference, i.e. the statistical generalization from a random sample to a population.
• Use statistical software program SPSS to conduct basic univariate, bivariate, and multivariate analysis.
• Report the findings of statistical analysis in a research report.

METHOD OF ASSESSMENT

The final grade in this class consists of six components:
1. Participation in seminars (10 percent)
2. Paper 1 (15 percent)
3. Paper 2 (20 percent)
4. Quiz 1 (10 percent)
5. Quiz 2 (10 percent)
6. Final exam (35 percent)

REQUIRED READING

The following textbook presents the key material for this course: Roberts, Lance W.; Edgerton, Jason; Peter, Tracey & Wilkinson, Lori. (2015). Understanding Social Statistics. Oxford University Press.