

# PO91Q-20 Fundamentals in Quantitative Research Methods

**24/25**

**Department**

Politics & International Studies

**Level**

Taught Postgraduate Level

**Module leader**

Florian Reiche

**Credit value**

20

**Module duration**

9 weeks

**Assessment**

100% exam

**Study location**

University of Warwick main campus, Coventry

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## Description

### Introductory description

PO91Q introduces students to quantitative methods for the social sciences. It is suitable for all students interested in applied data analysis, from a background in any social science, or at least having an interest in these disciplines. Prior background in quantitative methods before the module may range from none to intermediate.

### Module aims

To introduce students to the literature making use of applied statistics

To introduce students to foundational data management and to the use of applied statistics in the social sciences

To prepare students to attend further statistical training, and to make use of statistics in future research works, such as their master's dissertation

### Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

Week 1: Quantitative Research Design and Fundamental Statistical Concepts  
Week 2: Descriptive Statistics and Graphs  
Week 3: Foundations of Statistical Inference  
Week 4: Confidence intervals and Significance Tests  
Week 5: Introduction to Causality  
Week 6: READING WEEK  
Week 7: Bivariate Methods  
Week 8: Bivariate Regression  
Week 9: Multivariate Regression I  
Week 10: Multivariate Regression II

## Learning outcomes

By the end of the module, students should be able to:

- Conceptualise research problems rigorously;
- Make use of a variety of available data;
- Understand the principles of statistical description and inference, statistical tests, statistical control and OLS regression;
- Select, perform, interpret and present a range of univariate, bivariate or multivariate statistical and graphical methods relevant to their research project;
- Critically engage with quantitative social and political science literature;
- Have some experience of a standard statistical software, such as R.

## Indicative reading list

- AGRESTI A. and FINLAY B. 2008. Statistical Methods for the Social Sciences, 4th ed. Upper Saddle River
- BALNAVES M. and CAPUTI P. 2001. Introduction to Quantitative Research Methods. An investigative Approach. Sage
- BARTHOLOMEW D. J. et al. 2008. Analysis of Multivariate Social Science Data. CRC Press [more advanced]
- DE VAUS D. 2002. Analysing Social Science Data. 50 Key Problems in Data Analysis. Sage [a problem-based approach [one problem per chapter]
- FIELDING J and GILBERT N. 2006. Understanding Social Statistics, Sage
- FIELD A., MILES J. and FIELD Zoë. 2012. Discovering statistics using R. Sage [big, but assuming absolutely no background in mathematics or statistics, with very detailed explanations and many illustrations]
- FOGARTY B. 2018. Quantitative Social Science Data with R: An Introduction. Sage
- GILL J. 2006. Essential Mathematics for Political and Social Research. Cambridge University Press [a mathematics refresher]
- IMAI K. 2017. Quantitative Social Science: An Introduction. Princeton University Press [a short and gentle introduction]
- KELLSTEDT P. and WHITTEN G. 2009. The Fundamentals of Political Science Research. Cambridge
- KRANZLER. 2011. John H. Statistics for the terrified, Pearson Prentice Hall
- MARSH C. and ELLIOTT, J. 2009. Exploring Data: An Introduction to Data Analysis for

Social Scientists. Polity Press

- REICHE, F. forthcoming. Introduction to Quantitative Methods for the Social Sciences. Oxford: Oxford University Press.
- SAPSFORD R. and JUPP V. 2006. Data Collection and Analysis. Sage
- STINEROCK R. 2018. Statistics with R. A Beginner's Guide. Sage
- TARLING R. 2009. Statistical Modelling for Social Researchers. Routledge
- TEETOR P. 2011. R Cookbook. O'Reilly.
- TEETOR P. 2011. 25 recipes for getting started with R. O'Reilly.

[View reading list on Talis Aspire](#)

## Research element

PO91Q teaches how to learn and practice quantitative research.

## Interdisciplinary

PO91Q applies quantitative methods to all social sciences, with some degree of transferability beyond this domain.

## International

The worked examples used on PO91Q are drawing on data from around the world.

## Subject specific skills

Cognitive Skills

Have the ability to read quantitative studies, extract concepts and discuss the results

Be able to connect a research question with appropriate data, tools and research design

Assess and cite published literature

## Transferable skills

Key Skills; Subject-Specific/Professional Skills

Know how to plan a basic research project and convince about its relevance

Conduct quantitative research autonomously

Present results in writing in a rigorous manner.

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## Study

## Study time

<b>Type</b>	<b>Required</b>
Lectures	9 sessions of 1 hour (4%)
Seminars	9 sessions of 2 hours (9%)
Private study	173 hours (86%)
Total	200 hours

### **Private study description**

Students will practice a number of practical activities and analytical exercises outside the classroom in their own time, as well as develop their personal projects – all this is needed for them to be able to do the final essay and it is expected that much of the work that is done inside and outside the of classroom is reflective in the final essay. This adds up to a total of about 200 hours of work over the term.

### **Costs**

No further costs have been identified for this module.

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### **Assessment**

You must pass all assessment components to pass the module.

#### **Assessment group B1**

	<b>Weighting</b>	<b>Study time</b>
Online Examination	100%	
The examination will be about any material covered in the module. It will blend multiple-choice questions and open-ended questions.		
~Platforms - Moodle,WAS		

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- Online examination: No Answerbook required

### **Feedback on assessment**

Summative – Written feedback will be provided on summative assessments.

In addition:

- Detailed and regular feedback will be provided throughout the module seminars.
- Individual and group verbal feedback will be provided during classes.
- Students may consult their seminar tutor in addition during their weekly advice and feedback

hours, and through email.

[Past exam papers for PO91Q](#)

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## **Availability**

### **Courses**

This module is Core for:

- Year 1 of TIMS-L990 Postgraduate Big Data and Digital Futures
- Year 1 of TPOS-M9PY Postgraduate Politics and International Studies: Big Data and Quantitative Methods

This module is Core optional for:

- MSc in Quantitative Social Research