

# QS905-20 Fundamentals in Quantitative Research Methods

**20/21**

**Department**

Politics & International Studies

**Level**

Taught Postgraduate Level

**Module leader**

Philippe Blanchard

**Credit value**

20

**Module duration**

9 weeks

**Assessment**

100% coursework

**Study location**

University of Warwick main campus, Coventry

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## Description

### Introductory description

QS905 introduces 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 the interest in these disciplines. Prior background in quantitative methods before the module may range from none to intermediate.

[Module web page](#)

### 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: How to design a quantitative research project. Fundamental statistical concepts. How to obtain and manage data. R and RStudio for social statistics.

Week 2: Descriptive statistics and graphs

Week 3: Probability and inference. Bivariate statistics

Week 4: Confidence intervals and significance tests

Week 5: Bivariate regression I

Week 6: Not taught ("reading week")

Week 7: Bivariate regression II. Research design and causality

Week 8: Multivariate statistics, including Multivariate regression I

Week 9: Multivariate regression II

Week 10: Refining regression models and overview of further methods

## 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
- 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

QS905 teaches how to learn and practice quantitative research.

## Interdisciplinary

QS905 applies quantitative methods to all social sciences, with some degree of transferability beyond this domain.

## 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.

## Study

### Study time

Type	Required
Lectures	9 sessions of 1 hour (4%)
Total	200 hours

<b>Type</b>	<b>Required</b>
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 A1

	<b>Weighting</b>	<b>Study time</b>	<b>Eligible for self-certification</b>
<b>Assessment component</b>			
Assessed Essay A 4,500-word essay.	100%		Yes (extension)

NB. We have aimed for 4500 words as the general word length across all the 3 Q-Step PGT degrees. Given the students do so much data analysis for every assessment, in addition to substantive reading on the topic of analysis, the word length 'measure' on QS modules is not equivalent to non-empirical essays. Appendices will be encouraged where appropriate but these do not count towards the word count.

Reassessment component is the same

## Feedback on assessment

Summative – Detailed written feedback will be provided on summative assessments.

In addition:

- Detailed and regular feedback will be provided throughout the module seminars.
  - Individual verbal feedback on computer work will be provided throughout the sessions, as well as collective feedback in class.
  - Students may consult their seminar tutor in addition during their weekly advice and feedback hours.
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## Availability

### Post-requisite modules

If you pass this module, you can take:

- PO9F1-20 Quantitative Approaches to the Environment
- IM906-60 Dissertation

## Courses

This module is Core for:

- TIMS-L990 Postgraduate Big Data and Digital Futures
  - Year 1 of L990 Big Data and Digital Futures
  - Year 2 of L990 Big Data and Digital Futures
- Year 1 of TPOS-M9Q1 Postgraduate Politics, Big Data and Quantitative Methods
- Year 1 of TIMA-L981 Postgraduate Social Science Research

This module is Core optional for:

- Year 1 of TPOS-M9PV Double MA in Journalism, Politics and International Studies (with Monash University)
- TIMA-L981 Postgraduate Social Science Research
  - Year 1 of L98A Social Science Research (Applied Linguistics)
  - Year 1 of L98H Social Science Research (Economic and Social History)
  - Year 1 of L98D Social Science Research (Education)
  - Year 1 of L98F Social Science Research (Health & Wellbeing)
  - Year 1 of L98K Social Science Research (Interdisciplinary Methodologies)
  - Year 1 of L98E Social Science Research (Management & Business Studies and Finance)
  - Year 1 of L98G Social Science Research (Political Science & International Relations)
  - Year 1 of L98L Social Science Research (Socio-Legal Studies)
  - Year 1 of L98C Social Science Research (Sociology)

This module is Optional for:

- Year 1 of TPOS-M9PT MA in International Development
- Year 1 of TPOS-M1PA MA in International Politics and Europe

- Year 1 of TPOS-M1P3 Postgraduate Taught International Political Economy
- Year 1 of TPOS-M1P8 Postgraduate Taught International Politics and East Asia
- Year 1 of TPOS-M9P9 Postgraduate Taught International Relations
- Year 1 of TPOS-M9PC Postgraduate Taught International Security
- Year 1 of TPOS-M9PS Postgraduate Taught Political and Legal Theory
- Year 1 of TPOS-M9PF Postgraduate Taught Public Policy
- Year 1 of TPOS-M9PQ Postgraduate Taught United States Foreign Policy
- Year 1 of TIMA-L99D Postgraduate Taught Urban Analytics and Visualisation

This module is Option list A for:

- Year 1 of TSOA-L3PW Postgraduate Taught Social Inequalities and Research Methods
- TSOA-L3P8 Postgraduate Taught Social and Political Thought
  - Year 1 of L3P8 Social and Political Thought
  - Year 1 of L3P8 Social and Political Thought
- TSOA-L3PD Postgraduate Taught Sociology
  - Year 1 of L3PD Sociology
  - Year 1 of L3PD Sociology

This module is Option list C for:

- Year 1 of TWSA-M9P7 Postgraduate Taught Gender and International Development