PO91Q-20 Fundamentals in Quantitative Research Methods

21/22

Department
>Politics & International Studies

Level
>Taught Postgraduate Level

Module leader
>Philippe Blanchard

Credit value
>20

Module duration
>9 weeks

Assessment
>100% exam

Study location
>University of Warwick main campus, Coventry

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 having an 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 degrre 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 (2%)
Seminars	9 sessions of 2 hours (4%)
Private study	173 hours (43%)
Total	400 hours

Type	Required
Assessment	200 hours (50%)
Total	400 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.

Assessment

You must pass all assessment components to pass the module.

Assessment group B

	Weighting	Study time
Online Examination	100%	200 hours

The examination will be about any material covered in the module. It will blend multiple-choice questions and open-ended questions.

~Platforms - AEP

- 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

Availability

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

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 L98F Social Science Research (Health & Wellbeing)
  - 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 TIMA-L99A Postgraduate Taught Digital Media and Culture
- 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 TPOS-M9PV Double MA in Journalism, Politics and International Studies (with Monash University)