

QS301-30 Applying Quantitative Methods to Social Research

20/21

Department

Sociology

Level

Undergraduate Level 3

Module leader

Ulf Liebe

Credit value

30

Module duration

18 weeks

Assessment

100% coursework

Study location

University of Warwick main campus, Coventry

Description

Introductory description

Advanced techniques of data analysis contribute to understanding and explaining social and political phenomena as well as to solving social problems. The module is designed to enhance students' ability to identify and prepare data, carry out a range of analyses and report the findings in a rigorous way. It will provide a firm foundation on techniques such as factor analysis, logistic regression, and multilevel modelling using real-world data. By the end of the module students will be able to identify, address and report on substantive research questions using a range of techniques. A one-hour lecture will explain the methods that you will apply in the two-hour seminar that follows.

[Module web page](#)

Module aims

This module introduces students to a selected set of advanced statistical methods that are commonly used in quantitative social research. A further aim is to familiarise students with the key issues in the craft of applied work so that they become careful, considered and thoughtful researchers in quantitative social sciences.

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.

Term 1

Week 1 Introduction to the module: Reflections on learning to date, structure of the module, theory driven empirical research, data source and documentation.

Week 2 Factor analysis I: Introducing factor analysis, interpreting and reporting the results.

Week 3 Factor analysis II: Introducing factor analysis, interpreting and reporting the results.

Week 4 Structural equation modelling I: Introducing structural equation modelling, interpreting and reporting the results.

Week 5 Structural equation modelling II: Introducing structural equation modelling, interpreting and reporting the results.

Week 6 Reading week.

Week 7 Panel models I: Introducing panel models, interpreting and reporting the results.

Week 8 Panel models II: Introducing panel models, interpreting and reporting the results.

Week 9 Linear probability, logit and probit model I: building the models and interpreting the results.

Week 10 Linear probability, logit and probit model II: reporting the results.

Term 2

Week 1 Recap of term 1; theory driven empirical research, and logistic/logit regression..

Week 2 Models for nominal outcomes I: Introducing the multinomial logit model, interpreting and reporting the results.

Week 3 Models for nominal outcomes II: Testing theoretically relevant model assumptions and model modifications.

Week 4 Models for ordinal outcomes I: Introducing the ordinal logit model, interpreting and reporting the result.

Week 5 Models for ordinal outcomes II: Testing theoretically relevant model assumptions and model modifications.

Week 6 Reading Week.

Week 7 Introducing multilevel modelling.

Week 8 Building a multilevel model I: Comparing groups and random intercept models.

Week 9 Building a multilevel model II: Random slopes/coefficient models and contextual effects.

Week 10 Multilevel models for binary data and outlook.

Learning outcomes

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

- To understand the basic principles of advanced quantitative methods
- To gain practical experience of applying advanced methods to real-world data using statistical software
- To appreciate the context in which advanced quantitative methods are best applied

Indicative reading list

Acock, A. (2013). *Discovering Structural Equation Modeling Using Stata*. College Station, Texas: Stata Press.

Andress, H.-J., Golsch, K., and Schmidt, A.W. (2013). *Applied Panel Data Analysis for Economic and Social Surveys*. Berlin: Springer.

Child, D. (1970 / 2006). *The Essentials of Factor Analysis*. New York: Continuum International Publishing.

Long, J.S., and J. Freese (2014). *Regression Models for Categorical Dependent Variables Using Stata*. 3rd Edition. College Station, Texas: Stata Press.

Rabe-Hesketh, S., and A. Skrondal (2012a). *Multilevel and Longitudinal Modeling Using Stata (Third Edition). Volume I: Continuous Responses*. College Station, TX: Stata.

Rabe-Hesketh, S., and A. Skrondal (2012b). *Multilevel and Longitudinal Modeling Using Stata (Third Edition). Volume II: Categorical Responses, Counts, and Survival*. College Station, TX: Stata.

Research element

Students work on own data analysis projects

Interdisciplinary

Interdisciplinary module for students in the social sciences

Opportunities for interdisciplinary learning are communicated to students

Subject specific skills

Systematic understanding of forms of statistical analysis and advanced quantitative approaches

Awareness of the value of, and practical experience of applying advanced quantitative analysis techniques

Heightened awareness of both the technical and theoretical/conceptual dimensions of quantitative data analysis

Ability to manipulate and to analyse secondary survey data using statistical computing software, and to present and interpret the results of these analyses appropriately at an advanced level

Transferable skills

By developing and conducting own analyses ...

the exercise of initiative and personal responsibility,

decision-making in complex and unpredictable contexts in data analysis.

Study

Study time

Type	Required
Lectures	18 sessions of 1 hour (6%)
Seminars	18 sessions of 2 hours (12%)
Private study	246 hours (82%)
Total	300 hours

Private study description

Reading for seminars.
Preparation for seminars
Preparation and writing of formative work
Preparation and writing of summative work

Costs

No further costs have been identified for this module.

Assessment

You do not need to pass all assessment components to pass the module.

Students can register for this module without taking any assessment.

Assessment group A1

Weighting Study time Eligible for self-certification

Assessment component

Data Analysis Report 1 (3000 words) 50% Yes (extension)

Reassessment component is the same

Assessment component

Data Analysis Report 2 (3000 words) 50% Yes (extension)

Reassessment component is the same

Feedback on assessment

Regular informal feedback will be provided throughout the module seminar sessions.

Formative: Feedback will be provided on the formative work.

Summative: Written feedback will be provided on the summative essay.

Availability

Courses

This module is Core for:

- Year 3 of UPOA-M162 Undergraduate Politics, International Studies and Quantitative Methods
- Year 4 of UPOA-M167 Undergraduate Politics, International Studies and Quantitative Methods (with Intercalated Year)

This module is Core optional for:

- Year 3 of ULAA-ML33 Undergraduate Law and Sociology

This module is Optional for:

- Year 3 of USOA-L301 BA in Sociology
- Year 4 of USOA-L306 BA in Sociology (with Intercalated Year)
- Year 3 of USOA-L314 Undergraduate Sociology and Criminology

This module is Unusual option for:

- Year 3 of UPHA-V7ML Undergraduate Philosophy, Politics and Economics

This module is Option list A for:

- ULAA-ML34 BA in Law and Sociology (Qualifying Degree)
 - Year 3 of ML34 Law and Sociology (Qualifying Degree)
 - Year 4 of ML34 Law and Sociology (Qualifying Degree)
- Year 5 of ULAA-ML35 BA in Law and Sociology (Qualifying Degree) (with Intercalated year)
- Year 4 of ULAA-ML33 Undergraduate Law and Sociology
- Year 3 of UPOA-ML13 Undergraduate Politics and Sociology
- Year 4 of UPOA-ML14 Undergraduate Politics and Sociology (with Intercalated year)
- Year 4 of UPOA-M163 Undergraduate Politics, International Studies and French
- Year 4 of UPOA-M164 Undergraduate Politics, International Studies and German
- Year 3 of UPOA-M16D Undergraduate Politics, International Studies and German (3 year degree)
- Year 4 of UPOA-M166 Undergraduate Politics, International Studies and Hispanic Studies

This module is Option list B for:

- Year 3 of UPOA-ML13 Undergraduate Politics and Sociology

This module is Option list C for:

- Year 3 of UHIA-VL13 Undergraduate History and Sociology
- Year 4 of UHIA-VL14 Undergraduate History and Sociology (with Year Abroad)