

PS125-30 Research and statistical methods for psychology students

24/25

Department

Psychology

Level

Undergraduate Level 1

Module leader

Luke Hodson

Credit value

30

Module duration

24 weeks

Assessment

100% coursework

Study location

University of Warwick main campus, Coventry

Description

Introductory description

This module provides an introduction to the skills and knowledge necessary for psychological investigation and empirical work in psychology, as well as the statistical analysis of psychological research data

Module aims

The module provides skills and knowledge necessary for designing, implementing, analysing, and reporting empirical investigations. This module also provides essential experience for students to conduct their own empirical investigation in the form of a project, as well as experience with both quantitative and qualitative research practice. Finally, this module also provides valuable preparation for the second, and third year projects.

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.

The module will provide an introduction to research methods in psychology. Topics will include, for example: Scientific writing for psychology: Structure and purpose of an article, the content of title, abstract, introduction, method (and subsections of method), results, discussions and reference section, and citations and referencing formats.

In addition, the module will include:

- Structure and components of experimental and non-experimental research designs.
- Types of data collection techniques.
- Application of statistical hypotheses to research, and selection of statistical tests for analysing data
- Statistical calculation using software (SPSS) of t-tests, chi-square (goodness-of-fit and contingency table) tests, correlation and simple regression, one-way ANOVAs, factorial ANOVAs and repeated-measures ANOVAs, and non-parametric tests.
- Reporting of statistical evidence in scientific reporting for psychology.

The module will also include a review of qualitative research design, with particular focus on the issues faced by researchers in designing qualitative research (i.e., interview schedules, focus group management etc.), as well as an overview of qualitative data analysis (e.g., content analysis, thematic analysis).

The module will also provide an introduction to more theoretical discussion, implication and issues faced by psychologists conducting research, including discussion of bad science, when statistical are misappropriated and misused, as well as an introduction to alternative perspectives in statistical analyses (i.e., Bayesian analysis). Finally, the module will include a theoretical introduction to advanced research methods via technology (e.g., eye-tracking, driving simulator).

Learning outcomes

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

- The ability to understand, implement and discuss the principles of psychological research
- The ability to understand the principles of experimental, observational, questionnaire, and qualitative research methods
- The ability to understand ethical issues in psychological research
- The ability to understand, demonstrate (including appropriate numeracy and analytic skills), and perform quantitative and qualitative data analysis methods
- The ability to design studies to formulate and test hypotheses, collect analyse and interpret data, and to apply these skills to write reports of empirical investigations that conform to the standard American Psychological Association format

Indicative reading list

Howell, D. C. (2008). *Fundamental statistics for the behavioural sciences* (6th ed.). Belmont, CA: Thomson Wadsworth. (or a more recent edition of this text) Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). London: Sage. (or a more recent edition of this text)

Howell, D. & Cramer, D. (2014). *Introduction to SPSS in Psychology* (6th ed.). Harlow, England: Pearson.

Nunn, J. (Ed.) (1998). *Laboratory psychology: A beginner's guide*. Hove, UK: Psychology Press

Harris, P. (2002). Designing and reporting experiments in psychology. Buckingham: Open University Press.

Mulberg, J. (2002). Figuring figures: An introduction to data analysis. Harlow , UK: Pearson Education.

Robson, C. (1993). Real world research. Oxford , UK: Blackwell.

Rosnow, R. L., & Rosnow, M. (2001). Writing papers in psychology. Belmont , CA : Wadsworth

Research element

Research Project Report. Design and conducted, and write up (independently) a replication study, using one of several suggested studies as a starting point: (i) Obtain ethical approval (completed and marked as a group); (ii) Write a 2500-word APA-format manuscript based upon research completed as a group (yo be submitted and marked individually). Students are advised that the project write-up must be passed for the module to be passed.

Subject specific skills

Statistical/analyses skills:

- An ability to present, evaluate and interpret quantitative data the design of factorial experiments, and factorial analysis of variance a familiarity with the basic aspects of the most common research approaches to Psychology, including statistical analyses.
- An ability to conducted, interpret and present qualitative analyses

Research methods skills:

- The formulation and design of appropriate research projects
- Critical analysis, formulation and testing of hypotheses write reports of empirical investigations that conform to the standard American Psychological Association format.
- Research report/ journal article structure
- Referencing conventions
- Understanding of ethical issues in psychological research

Transferable skills

Evaluate the appropriateness of different approaches to solving problems related to their area(s) of study and/or work communicate the results of their study/work accurately and reliably demonstrate techniques for displaying data.

written and oral communication skills.

Use of statistical packages (i.e., SPSS).

Group work.

Study

Study time

Type	Required	Optional
Lectures	36 sessions of 1 hour (12%)	2 sessions of 1 hour
Seminars	17 sessions of 1 hour (6%)	
Project supervision	3 sessions of 1 hour (1%)	
Practical classes	17 sessions of 1 hour (6%)	
Other activity	1 hour (0%)	
Private study	226 hours (75%)	
Total	300 hours	

Private study description

Guided private study, including preparation for 3 class tests and assignments and group work on the project (including preparation of ethics, design etc) and presentation preparation

Other activity description

presentations

Costs

No further costs have been identified for this module.

Assessment

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

Assessment group A1

	Weighting	Study time
Class test 1	10%	
Based on materials from the statistics lectures from term 1 weeks 1-5, this test will be based on Moodle. The test will be available within a limited time (e.g., four hours within 24 hours). Assessment will involve statistical analyses, reported via multiple choice or drag/drop style questions on Moodle.		
Class test 2	12%	
Based on materials the statistics lectures from term 1 weeks 6-10, this test will be based on Moodle. The test will be available within a limited time (e.g., four hours within 24 hours). Assessment will involve statistical analyses, reported via multiple choice or drag/drop style questions on Moodle.		
Class test 3	12%	
Based on materials the statistics lectures from term 2 weeks 1-5, this test will be based on		

Weighting

Study time

Moodle. The test will be available within a limited time (e.g., four hours within 24 hours). Assessment will involve statistical analyses, reported via multiple choice or drag/drop style questions on Moodle.

Research experience 5%

Participation in research projects

Qualitative analysis presentation 5%

Students will be asked to prepare and present a short presentation on their qualitative analysis.

Practical report one: Abstract, descriptive statistics, and references 5%

Students will be introduced to a theoretical piece of research, and asked to prepare only the abstract, reference list, and some descriptive statistics in a report style.

Practical report 2: Introduction and method 5%

Students will be introduced to a theoretical piece of research, and asked to prepare only the introduction and methods sections of a report.

Practical report 3: Results and discussion 5%

Students will be introduced to a theoretical piece of research, and asked to prepare only the results and discussion sections of a report.

Project report 36%

Research Project Report. Design, conduct and write up a replication study, using one of several suggested studies as a starting point: Write a 2500- word APA-format manuscript based upon it. Design and data collection will group based, but write up is completed individually. Students are advised that the project write-up must be passed for the module to be passed, as well as the weighted average needing to be above the pass mark.

Ethics application 5%

In preparation for the group research project, groups will need obtain ethical approval in line with departmental policy (using departmental forms); as part of this assessment students will be asked to outline research proposal.

Feedback on assessment

Feedback on practical reports and project report takes the form of 1) a printed form giving selected standard comments (corresponding to amount of credit given) on each assessed sub-element of the report (e.g., each student receives seven selected comments about the Abstract of which one could be "The abstract included a clear, accurate, concise statement of the dependent variable." or "The dependent variable was not stated in the abstract" or an alternative about the same topic would be included); plus 2) additional disambiguating comments from the marker, as needed.

Feedback on project presentation takes the form of marks on the department scheme for oral presentations plus written comments from the marker. Other components treated as summative only. Feedback on class tests in the form of correct/incorrect answers.

Availability

Post-requisite modules

If you pass this module, you can take:

- PS225-30 Further Methods for Psychology

Courses

This module is Core for:

- Year 1 of UPSA-C800 Undergraduate Psychology
- Year 1 of UPSA-C801 Undergraduate Psychology (with Intercolated year)
- Year 1 of UPSA-C804 Undergraduate Psychology with Education Studies
- Year 1 of UPSA-C802 Undergraduate Psychology with Linguistics