



Psychological Research Methods 2

PSY_M_RM2

Department of Psychology
Faculty of Arts and Human Sciences

Semester 1 2008/9

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1. UNIT DETAILS

Unit Title:	Psychological Research Methods 2
Unit Level:	M
Unit Reference Number:	PSY_M_RM2
Credit Value:	15
Student Study Hours:	150
Contact Hours:	36
Private Study Hours:	114
Pre-requisite Learning (If applicable):	Psychological Research Methods 1
Co-requisite Units (If applicable):	None
Course(s):	MSc Investigative Forensic Psychology
Year and Semester	2008-2009, Semester 1
Unit Coordinator:	Dr Jamie Smith-Spark
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Teaching Team & Contact Details (If applicable):	Laura McGrath Email mcgratl2@lsbu.ac.uk Room BR-E-344
Subject Area:	Psychology
Summary of Assessment Method:	Coursework 1: Practical report (50%) Coursework 2: Practical report (30%) Group oral poster presentation (20%)

2. SHORT DESCRIPTION

This unit develops on the issues studied in Psychological Research Methods 1, introducing more sophisticated and powerful statistical techniques and methods of data collection, together with qualitative data analysis techniques. The unit focuses on the techniques students are likely to adopt for their research project, furnishing them with the methodological and statistical skills needed to design, implement, and analyse an extensive piece of independent research.

3. AIMS OF THE UNIT

This unit aims to:

- enable students to undertake more advanced empirical studies and to further their ability to evaluate and communicate findings in a scientifically meaningful and critical way
- enable students to further develop skills in the application and calculation of more advanced and sophisticated statistical procedures and to provide an understanding of the rationales for their use
- provide students with the statistical knowledge and research skills necessary to independently design, conduct, and analyse their research project

4. LEARNING OUTCOMES

4.1 Knowledge and Understanding

This unit will give students the opportunity to:

- develop a greater understanding of the science underlying psychology as a discipline
- gain more advanced knowledge of a range of research paradigms, research methods, and data collection techniques, including more sophisticated and powerful statistical procedures

4.2 Intellectual Skills

This unit will allow students to:

- reason scientifically, understand the role of evidence, and make critical judgements about arguments in psychology
- develop, operationalise, and critique research questions with a greater level of independence
- demonstrate and hone their research skills in carrying out empirical studies using more advanced methods
- reason statistically, using a range of more sophisticated and powerful statistical tests
- present and evaluate research findings in a more critical and informed way
- generate and explore further research questions in practical work
- become increasingly aware of ethical principles in psychology and relate these to their own studies

4.3 Practical Skills

This unit will allow students to:

- gain more experience in running empirical studies using different and more advanced methods of data collection
- analyse data using quantitative and qualitative methods
- retrieve and/or organise information effectively, e.g. from electronic sources
- use computers in various ways, including word processing and the use of databases and statistical software (SPSS)

4.4 Transferable Skills

This unit will allow students to:

- retrieve and/or organise information effectively, e.g. from electronic databases
- use and understand numerical, statistical, and other forms of data
- use computers in various ways (apart from word processing)
- problem solve and reason in a systematic and scientific fashion
- make critical judgements and evaluations in interpreting empirical data
- be sensitive to contextual and interpersonal factors in research
- gain more experience in communicating ideas and research findings effectively using spoken and written language
- operate as self-directed, independent, and pragmatic learners
- develop the research and statistical skills necessary to carry out their research project independently, recognising the theoretical, practical, and methodological implications and limitations of the research

4.5 Equality and Diversity

Equality and diversity is addressed in the teaching of the unit and through the delivery of unit materials. Lectures will highlight issues pertinent to equality and diversity such as attitudes, social influence, and group relations. It is recognised that students enrolled are likely to have different academic backgrounds and some may be more familiar with the material covered in the course and others less so. Those students with less experience will receive as much support as they need whilst students with more experience will be pointed to reading that will stretch and challenge them. Furthermore, students will be encouraged to help each other in discussions and group exercises according to their strengths. Blackboard will be used which will enable students with visual impairments or dyslexia to print out course materials in an appropriate format.

5. ASSESSMENT OF THE UNIT

There will be three pieces of assessed work for RM1: two practical reports and a group oral poster presentation (addressing the applied aspects of Practical Report 2). In carrying out the assessments, students will develop the knowledge and skills outlined in the learning outcomes. These should be submitted in the way specified below.

Students may be required to provide electronic copy of written work submitted. In such instances, the individual student will be written to requesting electronic submission. Failure to provide electronic copy within TWO WEEKS of a written request will result in the work being deemed an incomplete submission, and no mark will be given. The work will then have to be referred for a capped mark. When Extenuating Circumstances have already been accepted for a unit, this will not negate the proper investigation of any component of that unit for any allegation of academic misconduct, nor the subsequent imposition of any appropriate penalty for proven misconduct.

The details of the individual assessments are as follows:

Practical report 1: Maximum 2000 words (50%)

Practical report 2: Maximum 1500 words (30%)

Group oral poster presentation (20%)

The handouts associated with each practical will be available for download from Blackboard.

The pass mark for the unit is 50%.

Assessment Criteria & Feedback Pro Forma

The categorical marking scheme will be used (see the Information section on the RM1 Blackboard site).

The Department feedback pro forma for practical reports will be used (again see Blackboard).

6. FEEDBACK

Feedback will normally be given to students 20 working days after the submission of an assignment.

7. INTRODUCTION TO STUDYING THE UNIT

7.1 Overview of the Main Content

Week	Topic(s) for session
1	Designing questionnaires
2	1-way ANOVA
3	2-way and 3-way ANOVA
4	Practical 1
5	MANOVA and ANCOVA
6	Correlation
7	Linear regression
8	Practical 2
9	Logistic regression and log-linear models
10	Factor analysis and multidimensional scaling
11	Qualitative research methods: Grounded theory
12	Qualitative research methods: Discourse analysis

7.2 Overview of Types of Classes

The unit will be taught during 12 three hour sessions over the course of twelve weeks. Teaching will comprise large and small group sessions. Some of the large group sessions will be participatory, some will involve demonstrations, and some will involve the imparting of information in standard lecture format to provide students with the core knowledge that they need. Small group sessions will focus on consolidating knowledge via discussion and practical work where possible. More generally small group sessions will provide you with an opportunity to critically discuss relevant research and recent scientific journal papers. Lecturers will encourage questions from you and try to foster interaction between students and between students and staff.

7.3 Importance of Student Self-Managed Learning Time

Whilst the lectures will introduce a range of statistical tests and design issues, and these will be followed up with practical experience in analysing tests and designing experiments, it is important that students supplement this with their own reading and exploration of the topics covered. The unit requires 114 hours of private study time. In order to gain the maximum benefit from the lectures and seminars, it is recommended that students read the relevant chapters in the core texts (these are indicated for each lecture and seminar in the detailed teaching programme below).

7.4 Employability

The unit will equip students with a range of analytical thinking, numeric, and practical skills to make them more employable. Report writing, in particular, is an important skill in many professions that recruit Psychology graduates. For instance, the ability to describe investigations and interpret findings will be of particular use. The seminars will also encourage verbal communication skills, another important asset in the workplace.

8. THE PROGRAMME OF TEACHING, LEARNING AND ASSESSMENT

The following notes are indicative only and may be liable to adjustments during the course of the semester. Where changes occur, updated information will be provided during classes.

TEACHING PROGRAMME

Week 1. Designing questionnaires

Synopsis:

Questionnaires are probably the most commonly adopted research tool in the social sciences, but their use is not without pitfalls. A variety of factors, from choice of wording to presentation style, will influence the completion and return rate of questionnaires. In this session, we will address a number of such design issues and you will gain practical experience in designing a short questionnaire.

Suggested reading:

Clark-Carter, D. (2004). *Quantitative psychological research*. Hove: Psychology Press. [Chapters 5 and 6]

Fife-Schaw, C. (2006). Questionnaire design. In Breakwell, G., Hammond, S., Fife-Schaw, C., & Smith, J. A. (Eds., 2006), *Research methods in psychology* (pp. 210-231). London: Sage. [Chapter 11]

Nardi, P. (2006). *Doing survey research: A guide to quantitative methods*. Boston, MA: Pearson Education. [Chapter 4]

Week 2. One-way ANOVA

Synopsis:

In RM1, we gained experience in using the t -test to test for differences between either groups (the unrelated t -test) or conditions (the related t -test). However, whilst the t -test is good at measuring differences in means, it can only be used for simple designs which employ just two levels of treatment. In this session, we will discuss a more versatile and powerful statistical test of effect, the one-way ANOVA, which can be used to test differences between three or more levels of treatment. We will become acquainted with the term 'factor' to describe an independent variable and consider both related and unrelated one-way ANOVA. However, whilst ANOVA can tell us whether there is a significant difference between two, three, or more levels of treatment, it cannot tell us where this difference actually lies. For that, we need to run post hoc tests, which compare each treatment mean with every other treatment mean to indicate exactly which treatment or treatments differs from the others. You will gain experience in running one-way ANOVAs and post hoc tests in SPSS and revise the plotting of graphs to represent means.

Suggested reading:

George, D., & Mallery, P. (2007). *SPSS for Windows step by step 14.0 update* (7th ed.). Boston, MA: Pearson Education. [Chapter 12]

Howell, D. (2007). *Statistical methods for psychology* (6th ed.). Belmont, CA: Thomson Higher Education. [Chapters 11 and 12]

Week 3. Two- and three-way ANOVA

Synopsis:

There will be many situations where we will be interested in manipulating more than just one factor in our design and will want to know whether different factors interact with each other. This session will build on the ideas introduced in Week 2 to examine more sophisticated ANOVA models, involving two or three independent variables (or factors). We will discuss two- and three-way ANOVA (within-subjects, between-subjects, and mixed-measures designs) and revise the use of post hoc tests. We will also discuss the use of interaction diagrams to represent our data and to help us interpret the nature of any significant interactions we may uncover.

Suggested reading:

George, D., & Mallery, P. (2007). *SPSS for Windows step by step 14.0 update* (7th ed.). Boston, MA: Pearson Education. [Chapters 13 and 14]

Howell, D. (2007). *Statistical methods for psychology* (6th ed.). Belmont, CA: Thomson Higher Education. [Chapters 13 and 14]

Week 4. Practical 1

Synopsis:

In today's session, you will carry out a piece of psychological research. Background information, the rationale, and the reading for the experiment will be made available to you via Blackboard. This experiment will be written up as a 2000-word practical report and will be worth 50% of the unit mark.

Suggested reading:

See the handout for this week.

Week 5. MANOVA and ANCOVA

Synopsis:

In RM1, we discussed the issue of controlling extraneous variables that may influence our findings. However, it is not always possible to control for these prior to running an experiment (particularly when we have adopted a quasi-experimental design) and we need to control for them statistically in our analyses. In this session, we will discuss the use of analysis of covariance (ANCOVA) to control for differences that exist between our groups prior to running an experiment (e.g., a difference in age or IQ).

In addition to this, we will consider multivariate analysis of variance (MANOVA). This is a powerful statistical technique which allows us, unlike ANOVA, to enter more than one dependent variable into an analysis.

Suggested reading:

Field, A. (2005). *Discovering statistics using SPSS* (2nd ed.). London: Sage. [Chapters 9 and 14]

George, D., & Mallery, P. (2007). *SPSS for Windows step by step 14.0 update* (7th ed.). Boston, MA: Pearson Education. [Chapters 14 and 23]

Howell, D. (2007). *Statistical methods for psychology* (6th ed.). Belmont, CA: Thomson Higher Education. [Chapters 14 and 16]

Week 6. Correlation

Synopsis:

The majority of the statistical tests we have encountered so far have been tests of effect and have looked for differences in means between groups or conditions. However, it is often the case that a researcher will be interested in the relationship between scores on two different variables and in determining the extent to which they are correlated. There are a number of tests of association which are designed to examine the strength and direction of the relationship between two variables.

In this session, we will consider one such test, Pearson's product moment correlation coefficient, in detail and also briefly discuss a non-parametric alternative (Spearman's rho). Partial correlation will also be addressed.

Suggested reading:

George, D., & Mallery, P. (2007). *SPSS for Windows step by step 14.0 update* (7th ed.). Boston, MA: Pearson Education. [Chapter 10]

Howell, D. (2007). *Statistical methods for psychology* (6th ed.). Belmont, CA: Thomson Higher Education. [Chapter 9]

Week 7. Linear regression

Synopsis:

A correlation coefficient provides some information about the relationship between two variables, but it is possible to do more by using regression. This session will discuss the use of regression to predict relationships between variables. We will see how we can use the regression equation to use the value on one variable to predict the value on another variable even if the first value was not present in the original data set. This is known as simple linear regression. We will also discuss more sophisticated regression analyses, which involve predicting scores on one variable based on scores on a number of other variables. This technique is known as multiple regression and is commonly used in psychological research. There are pitfalls to using regression and these will also be highlighted.

Suggested reading:

George, D., & Mallery, P. (2007). *SPSS for Windows step by step 14.0 update* (7th ed.). Boston, MA: Pearson Education. [Chapters 15 and 16]

Howell, D. (2007). *Statistical methods for psychology* (6th ed.). Belmont, CA: Thomson Higher Education. [Chapters 9 and 15]

Week 8. Practical 2

Synopsis:

Over the course of this unit, you have been working in small groups to design and implement a psychological experiment. This session will be devoted to finalising the design and completing the materials needed to run it. We will also discuss how to analyse your data.

This experiment will be written up as a 1500-word practical report and will be worth 30% of the unit mark. A group oral poster presentation of the findings will also be assessed and this will be worth 20% of the unit mark.

Suggested reading:

See the handout for this week.

Week 9. Logistic regression and log-linear models

Synopsis:

Logistic regression is an extension of multiple regression. However, it differs in that the criterion (or dependent) variable is dichotomous, i.e. it can take only two values (such as Yes/No or Group membership/No-membership). Logistic regression can be used to predict a discrete outcome (such as membership of a group) from a number of variables.

Log-linear models are used to analyse frequency data. Where we are interested in the relationship between only two categorical variables, Chi-square is appropriate to use and easy to interpret. However, if we want to analyse the relationships between a larger number of categorical variables, Chi-square becomes very difficult to interpret visually. Log-linear models have been developed for such cases.

In this session, we will discuss both statistical methods and gain practical experience in running them in SPSS.

Suggested reading:

Field, A. (2005). *Discovering statistics using SPSS* (2nd ed.). London: Sage. [Chapters 6 and 16]

George, D., & Mallery, P. (2007). *SPSS for Windows step by step 14.0 update* (7th ed.). Boston, MA: Pearson Education. [Chapters 25, 26, and 27]

Howell, D. (2007). *Statistical methods for psychology* (6th ed.). Belmont, CA: Thomson Higher Education. [Chapter 17]

Week 10. Factor analysis and multidimensional scaling

Synopsis:

Factor analysis takes a large number of variables and identifies a smaller number of factors that can explain the interrelationships between the variables. It uses correlations between variables to determine what underlying dimensions (or factors) are being represented by the variables. It reduces a multitude of variables to a smaller set of underlying basic dimensions.

Multidimensional scaling allows interrelationships between items to be displayed as points on a map or in a three-dimensional space. It allows us to develop an understanding of the spatial structure of our data and the similarities and dissimilarities between items in our data set. It is similar in some ways to factor analysis but, rather than the meaning of dimensions (or factors) being of central importance to the analysis, the location in space of the data points (and the distance between them) is crucial to interpretation.

In this session, we will discuss both statistical methods and gain practical experience in running them in SPSS.

Suggested reading:

George, D., & Mallery, P. (2007). *SPSS for Windows step by step 14.0 update (7th ed.)*. Boston, MA: Pearson Education. [Chapters 19 and 20]

Week 11. Qualitative Analysis 1: Grounded Theory

Synopsis:

The session will start with a brief reminder of the basis and form of qualitative methods, covered in RM1. As discussed last term, there are many ways in which data can be collected for a qualitative study, including interviews, focus groups, diaries, photographs and media reports. Deciding how to best interpret and analyse the data collected is a crucial element of qualitative research and the method chosen will depend upon the aim of the study as well as the epistemological position of the researcher. This session will focus on the first qualitative method widely used in Psychology, Grounded Theory. This method attempts to draw out key themes and patterns from data following a coding system aiming not to bring any preconceptions of what the data will say to the analysis. After an outline of the basis and procedure of Grounded Theory, you will have a chance to analyse some data yourself, following the Grounded Theory method.

Suggested reading:

Lyons, E., & Coyle, A. (Eds., 2007). *Analysing qualitative data in psychology*. London: Sage.

Smith, J. A. (Ed., 2008). *Qualitative psychology: A practical guide to research methods (2nd ed.)*. London: Sage.

Strauss, A. and Corbin, J. (1998). *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*. London: Sage.

Willig, C. (2001). *Introducing Qualitative Research in Psychology: Adventures in Theory and Method*. Buckingham: Open University Press.

Week 12. Qualitative Analysis 2: Discourse Analysis

Synopsis:

The data of much (though not all) qualitative research is talk of some kind, most commonly in the form of interviews or focus groups. An important part of the analysis process is deciding exactly how to view the 'truth' of what the participants have said during the interview to know what conclusions can be drawn from the data. Many qualitative psychologists are critical of the idea that what people say offers a direct route to their internal states or thoughts. Pointing to the variability of people's behaviour and talk in different situations, social constructionist psychologists instead argue that

people produce different versions of themselves and events depending on the situation. People talk differently, for instance, at home or at work; with their parents or partners; and with their friends or their boss. This is not seen as being deceitful, but instead as being socially skilled and adaptable. Discourse Analysis is a method that has been developed from these ideas; rather than looking at the content of what has been said and trying to draw out themes (like Grounded Theory), in a Discourse Analysis we are interested in what the participants are *doing* when they talk about a certain subject. How are they presenting themselves? How do they use language in order to make their account believable or convincing? What commonly known ideas and concepts do they draw on or disagree with as part of their account? In this session we will look at the theory behind Discourse Analysis before practising some analysis for ourselves.

Suggested reading:

Burman, E. and Parker, I. (1993). *Discourse analytic research: Repertoires and readings of texts in action*. London: Routledge.

Burr, V. (1995). *An Introduction to Social Constructionism*. London: Routledge.

Edwards, D. (1997). *Discourse and Cognition*. London: Sage.

Gergen, K. (1999). *An Invitation to Social Construction*. London: Sage.

Parker, I. and the Bolton Discourse Network (1999) *Critical Textwork: An Introduction to Varieties of Discourse and Analysis*. Buckingham: Open University Press.

Wetherall & Potter (1987). *Discourse and Social Psychology: Beyond Attitudes and Behaviour*. London: Sage.

9. LEARNING RESOURCES

9.1 Core Materials

Breakwell, G., Hammond, S., Fife-Schaw, C., & Smith, J. A. (Eds., 2006). *Research methods in psychology*. London: Sage.

George, D., & Mallery, P. (2007). *SPSS for Windows step by step 14.0 update (7th ed.)*. Boston, MA: Pearson Education.

Howell, D. (2007). *Statistical methods for psychology* (6th ed.). Belmont, CA: Thomson Higher Education.

Lyons, E., & Coyle, A. (Eds., 2007). *Analysing qualitative data in psychology*. London: Sage.

9.2 Optional Materials

Field, A. (2005). *Discovering statistics using SPSS (2nd ed.)*. London: Sage.

Howitt, D., & Cramer, D. (2008). *Introduction to research methods in psychology (2nd ed.)*. London: Pearson Prentice Hall.

Miles, J., & Banyard, P. (2007). *Understanding and using statistics in psychology: A practical introduction*. London: Sage.

Smith, J. A. (Ed., 2008). *Qualitative psychology: A practical guide to research methods* (2nd ed.). London: Sage.

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