PSY 248

Design and Statistics II

S1 Day 2014

Psychology

Contents

General Information

Unit convenor and teaching staff
Tutor
Samantha Adams
samantha.adams@mq.edu.au
Contact via samantha.adams@mq.edu.au

Tutor
Beatrice Alba
beatrice.alba@mq.edu.au
Contact via beatrice.alba@mq.edu.au

Tutor + Admin
Alissa Beath
alissa.beath@mq.edu.au
Contact via alissa.beath@mq.edu.au

Unit Convenor
Eugene Chekaluk
eugene.chekaluk@mq.edu.au
Contact via eugene.chekaluk@mq.edu.au
C3A 527
Tues 9-11am; Fri 10-11am

Tutor
Melissa Dickinson
melissa.dickinson@mq.edu.au
Contact via melissa.dickinson@mq.edu.au

Tutor
Travis Wearne
travis.wearne@mq.edu.au
Contact via travis.wearne@mq.edu.au

Tutor
Joanne White
joanne.white@mq.edu.au
Contact via joanne.white@mq.edu.au

Credit points
3

Prerequisites STAT122(P) or STAT170(P) or STAT171(P) or PSY122(P) or (PSYC104 and PSYC105) or admission to GDipPsych
Corequisites
Co-badged status
Unit description This is an intermediate statistics unit, which covers both the design and statistical components of experiments common to psychological research. The importance of interpretation based on both the design and statistics components is emphasised, together with concepts of power and sample size requirements for efficient research. Statistical methods covered include: descriptive statistics; one-way and two-way analysis of variance; analysis of variance with repeated measures; correlation; and regression. The unit includes instruction on the presentation of statistical results in report formal. Practical classes are based on the use of the SPSS statistical package.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes

On successful completion of this unit, you will be able to:

Appreciate the way statistical techniques are used to support theory in psychology

Perform analyses of simple and complex experimental designs in psychology

Critically evaluate designs and analyses in experimental psychology

Assessment Tasks

Name	Weighting	Due
Weekly worksheets (x10)	20%	Weekly (Midnight Sunday)
Assignment (x2)	20%	TBA
Optional test (x2)	20%	TBA
Final exam	40%	TBA

Weekly worksheets (x10)

Due: **Weekly (Midnight Sunday)**

Weighting: **20%**

Worksheets to be completed on iLearn each week, relevant to the coming week's tutorial exercise.

On successful completion you will be able to:

- Appreciate the way statistical techniques are used to support theory in psychology
- Perform analyses of simple and complex experimental designs in psychology
- Critically evaluate designs and analyses in experimental psychology

Assignment (x2)

Due: **TBA**
Weighting: **20%**

2 x practical assignments involving reading and commenting on a psychological experiment, possibly involving SPSS software to produce output plus interpretation of results and communication of findings.

On successful completion you will be able to:

- Appreciate the way statistical techniques are used to support theory in psychology
- Perform analyses of simple and complex experimental designs in psychology
- Critically evaluate designs and analyses in experimental psychology

Optional test (x2)

Due: **TBA**
Weighting: **20%**

2 x in-class open-book optional tests

On successful completion you will be able to:

- Appreciate the way statistical techniques are used to support theory in psychology
- Perform analyses of simple and complex experimental designs in psychology
- Critically evaluate designs and analyses in experimental psychology

Final exam

Due: **TBA**
Weighting: **40%**

Final open-book examination in the University's exam period

On successful completion you will be able to:

- Appreciate the way statistical techniques are used to support theory in psychology

- Critically evaluate designs and analyses in experimental psychology

Delivery and Resources

Technology used:

Students will need access to SPSS, a statistical software package, for this course. SPSS can be bought from the Co-Op bookshop, accessed on University computers (e.g. C5C labs), and/or accessed via iLab.

The unit webpage is available via iLearn.

Lecture and Tutorial times

There are 3 x 1-hour lectures and 1 x 1-hour tutorial per week.

Tutorials commence in week 2 and students are expected to have completed readings, calculations, etc. *before* attending their class. Tutors are instructed not to do the practical exercises for you, but rather discuss your work, resolve difficulties, etc.

Students will be assigned to tutorials via the automated enrolment procedure. Note there are a limited number of evening tutorial times and these are reserved in the first instance for evening students.

Each tutorial has a limit of 25 students. This is both for safety and pedagogical reasons. Placing students into tutorial classes that pleases both the students' preferences and the above limitation is a difficult logistical exercise. Information on changing tutorial class preferences will be dealt with in the first lecture.

Please note that if you are enrolled as a full-time student, work commitments need to be structured around your study, not vice versa. Changes of tutorial times will only be sanctioned where unresolved clashes have occurred and free spaces in a practical class exist.

Practical exercised for each tutorial class will be available on the unit's web page.

Required and Additional Readings

Textbook

- Field, A. (2014). *Discovering statistics using IBM SPSS Statistics (4th ed.). London: SAGE.*

This is a very student-friendly text that combines statistical principles and the use of SPSS. This text will alsobe used in PSY349 and PSY418 in coming years, and thus goes beyond the scope of this course.

Course notes

These are also available for downloading on the PSY248 web page:

- Chekaluk, E. (2014). *PSY248 – Design and Statistics 2: Notes on ANOVA lecture topics.*

Additional Statistics References

- Christensen, L.B. & Stoup, C.M. (1991). *Introduction to statistics for the social and behavioral sciences* (2nd ed.). Pacific Grove, CA: Brooks/Cole

The best of the introductory texts, which covers knowledge assumed for this course. The approach is consistent with the present course, but it is not comprehensive enough to be a text.

- Harris, R.J. (1994) *ANOVA: An analysis of variance primer*. Itasca, Ill: Peacock

This book probably best follows the approach taken to the analysis of experimental data in this course. It is reasonably advanced and requires some level of mathematical sophistication (despite the author denying this).

- Hays, W.L. (1994) (5th Edition) *Statistics*. Harcourt Brace: Sydney

This is a classical, complete statistics text that covers the material in this course and more. It is not all that easy to read, but makes an excellent reference source.

- Howell, D. C. (2013) (8th ed.) *Statistical methods for psychology.* Belmont, CA: Wadsworth Cengage Learning.

This is comprehensive introductory to intermediate level text that overlaps to a reasonable level with this course.

- Ott, L. (1988) (3rd Edition) An introduction to statistical methods and data analysis. Boston: PWS-Kent

A comprehensive book that suffers because the examples rarely use psychological designs. Goes well beyond the current course.

Computing References

As well as the textbook, the main reference materials for more technical computing information are the following, which will be available on the PSY248 website:

- Chekaluk, E. (2012). *Using the MANOVA command in SPSS.*
- Taylor, A. (2011). *Introduction to IBM SPSS Statistics (The Red Book).*

If students want additional material, any of the following might be helpful. Please note that most of these are introductory, but some cover more complex procedures than those covered in this course.

- Francis, G. (2001). *Introduction to SPSS for Windows*. Third Edition, Versions 9.0 and 10.0. Sydney: Pearson.
- Coakes, S., & Steed, L. (2001). *SPSS analysis without anguish*. Version 10. Sydney: John Wiley.

- George, D., & Mallery, P. (2001). *SPSS For Windows step by step: a simple guide and reference.* 10.0 update. Sydney: Pearson.
- Brace, N., Kemp, R., & Snelgar, R. (2000) *SPSS for psychologists: a guide for data analysis using SPSS for windows (Versions 8, 9, & 10)*. Hampshire: Macmillan.
- Corston, R. & Colman, A. (2000). *A Crash Course in SPSS for Windows*. Oxford:Blackwell.
- Bryman, A. & Cramer, D. (1997) *Quantitative Data Analysis with SPSS for Windows*. London: Routledge

This contains some good information and advice on statistics, and is useful even though it was written for an older version of SPSS for Windows.

- Levine, G. (1991) *A guide to SPSS for analysis of variance*. Hillsdale, NJ: LEA

Very helpful for users of the MANOVA procedure

Also, keep an eye out for SPSS manuals, which are held in the Macquarie Library.

What has changed?

Since the last offering of this unit, the textbook has changed (see previous section), and course content has changed slightly. Specifically, Correlation and Regression topics, which were previously covered, have been removed, and topics of Non-Parametric Statistics have been added.

Unit Schedule

Lectures

Lectures will run for 3 x hours per week.

Lecture times are on *Fridays 8-10am* (X5B T1) *and 3-4pm* (E7B Mason Theatre).

Tutorial days and times can be found on the unit iLearn page, and on timetables.mq.edu.au/

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central. Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html

Assessment Policy http://mq.edu.au/policy/docs/assessment/policy.html

Grading Policy http://mq.edu.au/policy/docs/grading/policy.html

Grade Appeal Policy http://mq.edu.au/policy/docs/gradeappeal/policy.html

Grievance Management Policy http://mq.edu.au/policy/docs/grievance_management/policy.html

Disruption to Studies Policy http://www.mq.edu.au/policy/docs/disruption_studies/policy.html *The Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.*

In addition, a number of other policies can be found in the Learning and Teaching Category of Policy Central.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/support/student_conduct/

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- Workshops
- StudyWise
- Academic Integrity Module for Students
- Ask a Learning Adviser

Numeracy Centre

The Numeracy Centre offers free help to students of PSY248. A timetable of available tutors is available from the Centre. Any student who lacks the knowledge of mathematics or statistics needed for PSY248 is encouraged to seek the help of the Centre. The following services are offered to PSY248 students:

1. Advice on supplementary work needed;
2. Independent study using self-study materials;
3. Supplementary workshops on specific topics (there is a small charge for these workshops);
4. Help with assumed mathematical knowledge.

More detail can be found on the PSY248 iLearn page, or at the following address: maths.mq.edu.au/numeracy/

Peer Assisted Learning (PAL)

PAL will be available to PSY248 students. Details will be given in lectures.

Student Services and Support

Students with a disability are encouraged to contact the Disability Service who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

IT Help

For help with University computer systems and technology, visit http://informatics.mq.edu.au/help/.

When using the University's IT, you must adhere to the Acceptable Use Policy. The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

Capable of Professional and Personal Judgement and Initiative

We want our graduates to have emotional intelligence and sound interpersonal skills and to demonstrate discernment and common sense in their professional and personal judgement. They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing environments.

This graduate capability is supported by:

Learning outcomes

- Appreciate the way statistical techniques are used to support theory in psychology
- Perform analyses of simple and complex experimental designs in psychology
- Critically evaluate designs and analyses in experimental psychology

Assessment tasks

- Optional test (x2)
- Final exam

Discipline Specific Knowledge and Skills

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

Learning outcomes

- Appreciate the way statistical techniques are used to support theory in psychology
- Perform analyses of simple and complex experimental designs in psychology
- Critically evaluate designs and analyses in experimental psychology

Assessment tasks

- Weekly worksheets (x10)
- Assignment (x2)
- Optional test (x2)
- Final exam

Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

Learning outcomes

- Appreciate the way statistical techniques are used to support theory in psychology
- Perform analyses of simple and complex experimental designs in psychology
- Critically evaluate designs and analyses in experimental psychology

Assessment tasks

- Weekly worksheets (x10)
- Assignment (x2)
- Optional test (x2)
- Final exam

Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

Learning outcomes

- Appreciate the way statistical techniques are used to support theory in psychology
- Perform analyses of simple and complex experimental designs in psychology
- Critically evaluate designs and analyses in experimental psychology

Assessment tasks

- Weekly worksheets (x10)
- Assignment (x2)
- Optional test (x2)
- Final exam

Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

Learning outcomes

- Perform analyses of simple and complex experimental designs in psychology
- Critically evaluate designs and analyses in experimental psychology

Assessment tasks

- Assignment (x2)
- Optional test (x2)
- Final exam