PSYC2012 – Statistics & Research Methods for Psychology

Unit of Study Code: PSYC2012

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Format of Unit:
2 x 1 hour lectures/week x 7 weeks (odd weeks)
3 x 1 hour lectures/week x 6 weeks (even weeks)*
*except for Week 8, which has 2 x 1 hour lectures due to a public holiday on the Monday (refer to lecture/tutorial timetable below)

1 x 2 hour tutorial/week x 12 weeks
Tutorials commence in Week 2

Tutorial sizes: maximum of 23 students per tutorial

Credit Point Value: 6 Credit Points

Time Commitment:
4 hours face to face per week (odd weeks); 5 hours face to face per week (even weeks); 8 hours private study per week (including 2 hours of preparation for each tutorial)

Lecture attendance: Required. 80% recommended to pass unit. Audio recordings made of most lecture content and most slides posted online.

Tutorial attendance: Required. 80% recommended to pass unit. Attendance recorded. Attend your timetabled tutorial.

Prerequisites: 12 credit points of First Year Psychology (PSYC1001 and PSYC1002)

Assessment:
Written Assessment (10%):
Via Turnitin on Monday 4th April (Week 5)

Tutorial Test 1 (10%):
Open book; in your timetabled tutorial in Week 7

*Mid-semester examination (25%):
Closed book; computerised multiple-choice questions; in your timetabled tutorial in Week 9

Tutorial Test 2 (10%):
Open book; in your timetabled tutorial in Week 12

*Final Examination (45%):
Closed book; multiple-choice questions

*Completion of these assessments is compulsory to pass this unit. Students who fail to complete any of these compulsory components will receive an Absent Fail grade, regardless of their marks in other assessments.
Unit of Study general description:

In this unit of study you will be introduced to some of the basic concepts of statistics and statistical inference as well as research design, as applied in psychological research. The aim of the course is to develop your ability to understand the published research literature, to design and plan research questions with a clear idea of how to test the questions of interest, and to become critical consumers of any sort of statistical information. You will also be introduced to the computer package SPSS, which is a widely used program for statistical analysis. There are regular assessments throughout the course, which are intended to give you ongoing feedback about your progress over the course of the unit.

Graduate Attributes and Student Learning Outcomes for for Statistics & Research Methods for Psychology (PSYC2012):

This course is structured around the graduate attributes associated with the scientist-practitioner model, the basis for the training of psychologists in Australia and internationally.

Graduate Attributes are the generic skills, abilities and qualities that students should acquire during their university experience and the School of Psychology is committed to providing an environment to promote these skills. In addition, this unit of study will provide students with generalised and transferable skills that will also be useful in careers outside psychology. The following graduate attributes and student learning outcomes will be developed through lectures, tutorials and assessment activities in particular. Assessment is continuous and varied to enable students to demonstrate their understanding of all aspects of the unit of study. The assessments target all the elements of the attributes.

1: Knowledge and understanding of the application of statistics within Psychology

Understand and apply introductory statistics relevant to Psychology.

Student learning outcomes:
- calculate and interpret descriptive statistics such as measures of central tendency and variability
- demonstrate understanding of graphical and tabular representations of data, and be able to use statistical tables
- ability to conduct significance tests for statistical hypotheses relevant to Psychology
- be able to compute and interpret confidence intervals and other effect size indices
- understand the limitations of, and possibility of errors in, statistical inference
- be able to carry out appropriate statistical tests on computer using SPSS and interpret the output accordingly

2: Knowledge and understanding of research methods within Psychology

Understand, apply and evaluate basic research methods in Psychology.

Student learning outcomes:
- describe the basic characteristics of the science of psychology
- describe, apply, and evaluate the different research methods used by psychologists
- demonstrate practical skills in laboratory-based and other psychological research

3: Critical Thinking Skills in Psychological research

Use critical thinking and the scientific approach to solve problems relevant to Psychology

Student learning outcomes:
- apply knowledge of the scientific method in thinking about problems related to psychology
- question claims that arise from myth, stereotype, pseudoscience or untested assumptions by emphasising tools to test such assumptions (not assessed)
- recognise and defend against the major fallacies of human thinking such as graphical misrepresentations and overemphasis of mean compared to variance measures

4: Values, research and professional ethics

Understand issues relevant to the values, research and professional ethics in Psychology

Student learning outcomes:
- use information in an ethical manner (e.g., acknowledge and respect work and intellectual property rights of others through appropriate citations in oral and written communication) by evaluation of appropriate references to others’ work in written communications such as the written assessment

5: Communication Skills in statistics and research methods in Psychology

Communicate effectively in a variety of formats and in a variety of contexts

Student learning outcomes:
- answer questions in class regarding statistics and research methods content
- be able to write concise statistical conclusions
LECTURE AND TUTORIAL TIMETABLE

<table>
<thead>
<tr>
<th>WEEK</th>
<th>LECTURES (1 hour)</th>
<th>TUTORIALS (2 hours)</th>
<th>ASSESSMENTS</th>
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</thead>
</table>
| 1 (29/2 – 4/3) | 1. Welcome to PSYC2012 and the importance (and ethics) of statistics for psychological research (Monday 1pm; Pinkus)  
2. What are variables? Describing data with descriptive statistics – Part 1 (Thursday 12pm; Pinkus) | No tutorials |            |
| 2 (7/3 – 11/3) | 3. What are variables? Describing data with descriptive statistics – Part 2 (Monday 1pm; Pinkus)  
4. Linear transformations and z-scores (Thursday 12pm; Pinkus)  
5. The normal distribution (Thursday 4pm; Pinkus) | 1. Descriptive statistics |            |
| 3 (14/3 – 18/3) | 6. Research designs and hypothesis testing – Part 1 (Monday 1pm; Pinkus)  
7. Research designs and hypothesis testing – Part 2 (Thursday 12pm; Pinkus) | 2. Linear transformations and the normal distribution |            |
| 4 (21/3 – 25/3) | 8. z-tests (Monday 1pm; Pinkus)  
9. z-tests and t-tests for a single mean (Thursday 12pm; Pinkus)  
10. t-tests for a single mean (Thursday 4pm; Pinkus) | 3. Null Hypothesis Significance Testing (PUBLIC HOLIDAY: Friday 25th March – no tutorials) |            |

Non-teaching Week (28 March – 1 April; no classes)

<table>
<thead>
<tr>
<th>WEEK</th>
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| 5 (4/4 – 8/4) | 11. Confidence Intervals (Monday 1pm; Pinkus)  
12. Power and Effect Size (Thursday 12pm; Pinkus) | 4. z-tests and t-tests for a single mean | Written Assessment Due on Monday 4th April (10%) |
| 6 (11/4 – 15/4) | 13. Related samples t-tests (Monday 1pm; Pinkus)  
14. Independent samples t-tests (Thursday 12pm; Pinkus)  
15. Comparing tests, so far (Thursday 4pm; Pinkus) | 5. Confidence Intervals |            |
| 7 (18/4 – 22/4) | 16. External and internal validity (Monday 1pm; Clarke)  
17. Replicability and replication (Thursday 12pm; Clarke) | 6. Class Test 1 and independent samples t-tests | Class Test 1 (10%) |
| 8 (25/4 – 29/4) | (No lectures on Monday 25th April due to the public holiday)  
18. Chi-square tests – Part 1 (Thursday 12pm; Clarke)  
19. Chi-square tests – Part 2 (Thursday 4pm; Clarke) | 7. Related samples t-tests |            |
| 9 (2/5 – 6/5) | 20. One-way ANOVA – Part 1 (Monday 1pm; Clarke)  
21. One-way ANOVA – Part 2 (Thursday 12pm; Clarke) | 8. Mid-semester Exam and Chi-square tests | Mid-semester Exam (25%) |

Syllabus

Descriptive statistics: Measures of central tendency and variability. Effects of transformation on a set of scores. Finding areas under the normal curve.

Inferential statistics: Formulating hypotheses for tests of statistical significance for a single mean, using z and t-tests; for 2 related means and for 2 independent means using t-tests. Analysis of variance and follow-up tests for tests about means with two or more groups. Looking at relationships between two continuous variables: correlation. Factors affecting correlation. Testing correlation coefficients for statistical significance. Simple linear regression. Categorical data: tests for frequency data using the chi square statistic. Effect size measures for different statistics.

Research methods: Understanding the problems of designing experiments to answer specific questions, and limitations in the conclusions that can be drawn.
When I press the button, nothing happens.
- the Base Grad Pack (formerly known as the Student version), a cut-down version (22) that is less expensive and is suitable for PSYC2012, but not for 3rd year and beyond

Note that SPSS is available via the ICT Virtual Desktops located in the Access labs and University Libraries, and can also be accessed online through Bring Your Own Device (BYOD). SPSS is now up to version 23, but earlier versions are more than adequate. More details will be given in the first lecture and on LMS.

**Learning Management System (LMS) access:**

You are expected to check LMS regularly for lecture and tutorial notes, extra practice exercises, administrative notices, and other information and resources. The LMS site for PSYC2012 features a forum that you can use to discuss course content with your peers. This forum will be monitored by the PSYC2012 teaching staff.

You are required to be given access to the eLearning site (LMS) for this Unit of Study from the beginning of the week before semester begins. This document, and in particular details about assessment due dates, weightings and closing dates, must be available on that eLearning site from that time, and changes will not be made to these details throughout semester except in exceptional circumstances.

### PSYC2012 Assessment Summary

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<tr>
<th>What?</th>
<th>When?</th>
<th>When Returned?</th>
<th>% Assessment Weighting</th>
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<tbody>
<tr>
<td>Written Assessment</td>
<td>Available on LMS: Week 4 Due: via Turnitin on Monday 4th April (Week 5) No more submissions accepted: from Monday 18th April (Week 7)</td>
<td>Week 7 (via Turnitin)</td>
<td>10%</td>
</tr>
<tr>
<td>Tutorial Test 1</td>
<td>During your timetabled tutorial in Week 7 (18th – 22nd April)</td>
<td>Week 8 (in tutorials; mark only)</td>
<td>10%</td>
</tr>
<tr>
<td>Mid-semester Exam Compulsory*</td>
<td>During your timetabled tutorial in Week 9 (2nd – 6th May)</td>
<td>On completion of the exam (mark only)</td>
<td>25%</td>
</tr>
<tr>
<td>Tutorial Test 2</td>
<td>During your timetabled tutorial in Week 12 (23rd – 27th May)</td>
<td>Week 13 (in tutorials; mark only)</td>
<td>10%</td>
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<tr>
<td>Final Exam Compulsory*</td>
<td>During University exam period (13th – 25th June)</td>
<td>University Final Results Release Date for Semester 1, 2016</td>
<td>45%</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td></td>
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<td><strong>100%</strong></td>
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*Completion of these assessments is compulsory to pass this unit. Students who fail to complete any of these compulsory components will receive an Absent Fail grade, regardless of their marks in other assessments.*

**Assessment standards and criteria:**
The Written Assessment must be:
If you have (or develop) a continuing issue, register with Disability Services here: www.sydney.edu.au/disability

Late penalties:
You will receive a penalty of 2% of the maximum value of the Written Assessment (i.e., 2 marks / 100) for each calendar day (or part thereof) it is late, up to the closing date of the assignment, after which no more submissions will be accepted.

Other relevant information for the School of Psychology is detailed in the Current Students page on the School of Psychology Website:


If your assessments are disrupted by illness or misadventure or unavoidable community commitments, apply for Special Consideration / Special Arrangements online. Refer to link on the elearning site.

Please note: If you are ill and miss a tutorial, contact the tutor of another tutorial and request permission to attend that person’s tutorial time for that week; do NOT use the online special consideration form for missed tutorials.

If you have (or develop) a continuing issue, register with Disability Services here: www.sydney.edu.au/disability

The Faculty of Science does not permit informal special consideration.

Note that students who apply for and are granted either special arrangements or special consideration for examinations in units offered by the Faculty of Science will be expected to sit any replacement assessments in the two weeks immediately following the end of the formal examination period. Later dates for replacement assessments may be considered where the application is supported by appropriate documentation and provided that adequate resources are available to accommodate any later date.

Assuring the Academic Integrity of PSYC2012:
To assure the integrity of the written assessment, all assessments will be submitted to similarity detecting software (e.g., Turnitin) for the purpose of detecting possible plagiarism. Turnitin may retain a copy on its database for future plagiarism checking. When you submit your assessment via Turnitin you will be certifying that no part of your assessment has been copied from another student’s work or from any other source except where you have acknowledged the source within the assessment; that no part of this assessment has been submitted by you in another (previous or current) assessment (except where appropriately referenced, and with prior permission from the Lecturer/Tutor/Unit of Study Co-ordinator); and that no part of the assessment has been written for you by any other person. Please be aware that this assessment may be de-identified and reproduced in part or in full as an example for future students.

If you would like the opportunity to review the University’s policies about Academic Integrity, you can opt-in to complete the Academic Honesty Education Module online. Please refer to the eLearning site for more information.

Changes made to this unit in response to student feedback:
Tutorials have been changed from 1 hour to 2 hours. This is to accommodate all the tutorial content, which students had previously indicated was too rushed in one hour. The timing of in-class tests has also been changed in response to previous student feedback.

Data collection:
Note that your participation in this unit of study permits us to use your learning analytics to be used to improve your experience of learning.