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<th><strong>Unit of Study Code:</strong></th>
<th>PSYC2012</th>
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| **Coordinator:**       | Dr Ben Colagiuri  
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| **Other lecturing staff:** | Dr Dan Costa  
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| **Senior Tutor:**      | Mr Michael Kendig  
Office: Room 520 Griffith Taylor Building  
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| **Format of Unit:**    | 2 x 1 hour lectures/week x 13 weeks (Statistics)  
1 x 1 hour lecture x 6 weeks (even weeks: Research Methods)  
1 x 1 hour STA tutorial/week x 12 weeks  
1 x 1 hour COM computer tutorial x 6 weeks (alternate weeks) |
| **Tutorial sizes:**    | maximum of 22 students per group |
| **You need to attend both your weekly statistics (STA) tutorial and your fortnightly computer (COM) tutorial. You will be allocated to either EVEN or ODD weeks for your computer tutorial by the University Timetabling Unit. Tutorials and Research Methods lectures commence in week 2, on EVEN weeks.** |
| **Credit Point Value:** | 6 Credit Points |
| **Prerequisites:**     | 12 credit points of First Year Psychology (PSYC1001 and PSYC1002) |
| **Assumed Knowledge:** | HSC Maths, any level |
| **Assessment:**        | **Tutorial Test 1 (5%):** Open book; In STA tutorial (Week 4)  
**Tutorial Test 2* (12.5%):** Open book; In STA tutorial (Week 8)  
**Mid-semester examination* (25%):** Closed book; Computerized multiple-choice test held during STA tutorials in Week 9  
**Tutorial Test 3* (12.5%):** Open book; In STA tutorial (Week 12)  
**Final Examination* (45% of the total mark):** Closed book; Multiple-choice questions |

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

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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 programme 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 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 assessment targets 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 psychology
- question claims that arise from myth, stereotype, pseudoscience or untested assumptions by emphasizing 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 individual paper.

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
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.

LECTURE/TUTORIAL TIMETABLE*

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<thead>
<tr>
<th>WEEK</th>
<th>STATISTICS LECTURES</th>
<th>RESEARCH METHODS</th>
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<tbody>
<tr>
<td>1</td>
<td>Descriptive statistics: central tendency and variability (Colagiuri)</td>
<td>No lecture</td>
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<tr>
<td>2</td>
<td>Standard deviation, z scores, normal distribution (Colagiuri)</td>
<td>Variables and Relationships (Dar-Nimrod)</td>
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<td>3</td>
<td>Hypothesis testing; sampling distribution of the mean (Colagiuri)</td>
<td>Research Designs (Dar-Nimrod)</td>
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<tr>
<td>4</td>
<td>Hypothesis testing: z &amp; t test for a single mean (Costa)</td>
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<tr>
<td>5</td>
<td>Parameter estimation; statistical power (Costa)</td>
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<tr>
<td>6</td>
<td>t-tests for related and independent samples (Costa)</td>
<td>Internal and External Validity (Dar-Nimrod)</td>
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<td>7</td>
<td>Analysis of variance - one-way (Costa)</td>
<td>Artifacts and bias in behavioural research (Dar-Nimrod)</td>
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<tr>
<td>8</td>
<td>Analysis of variance - two way (Costa)</td>
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<tr>
<td>9</td>
<td>Correlation (Costa)</td>
<td>Controlling Extraneous Variables (Dar-Nimrod)</td>
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<td>10</td>
<td>Simple Linear Regression (Costa)</td>
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<tr>
<td>11</td>
<td>Chi square tests for categorical data (Costa)</td>
<td>Applications: Reading Research Critically (Dar-Nimrod)</td>
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<td>12</td>
<td>Applications: choosing appropriate tests (Costa)</td>
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<tr>
<td>13</td>
<td>Overview and revision (Costa)</td>
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* For more information, see Program available on web

EQUIPMENT

Students will need a calculator, to be brought to all tutorials. The calculator should have statistical functions; the calculators used in secondary school mathematics courses will be quite suitable. Students may also find it useful to have a USB memory stick for saving assignment and tutorial data.

TEXTBOOKS

NOTE: Two versions of the Howell text are available, only one of which is needed. For those students who have done no statistics before (Psych. 1 not included) and are apprehensive, the ‘Fundamentals’ book is recommended. For those who have some statistical training, the ‘Methods’ book is more advanced and a valuable reference for further study in Psychology. Earlier editions of the textbooks are suitable.

EITHER


OR


OTHER REFERENCES

The following may be useful for supplementary reading and exercises in statistics:


For Research Methods, a useful reference is:


For Using SPSS, a useful reference is:


See also information about links to Statistics on the eLearning site.
SOFTWARE

Purchasing SPSS software is not essential for PSYC2012 (but if money is no object, it might be recommended for those wishing to continue with psychology. Note however that recent licencing arrangements for students are not generous, and from V19 only one-year licences are available). There are 2 versions that can be purchased at the Co-Op bookshop: the Standard Graduate pack, a fully-functioning version of SPSS (recommended) and the Base Graduate pack (formerly known as Student version), a cut-down version that is less expensive and is suitable for PSYC2012, but not for 3rd year and beyond [there is also a Premium version available – you definitely do NOT need that]. SPSS is now up to version 23 (or is it still 22?), but earlier versions are more than adequate. More details will be given in the first lecture and on the web.

| PSYC2012 Assessment Summary |
|-------------------------------|---------------------------|-----------------|-----------------|-----------------|
| What?                        | When?                     | When Returned?  | % Assessment    |
| Tutorial Test 1              | Optional                  | Week 5 (in tutorials) | 5%              |
| Optional                     | During your allocated STA tutorial in Week 4 (23rd – 27th March), |                        |                  |
| Tutorial Test 2              | Compulsory                | Week 9 (in tutorials) | 12.5%           |
| Compulsory                   | During your allocated STA tutorial in Week 8 (27th April – 1st May) |                        |                  |
| Mid-semester                 | Compulsory                | On completion of the exam | 25%              |
| Exam                         | During your allocated tutorial in Week 9 (4th – 8th May) |                        |                  |
| Tutorial Test 3              | Compulsory                | Week 13 | 12.5%           |
| Compulsory                   | During your allocated STA tutorial in Week 12 (25th – 29th May) |                        |                  |
| Exam                         | Compulsory                | University Final Results Release Date for Semester 1, 2015 | 45%              |
| (Optional)                   | During exam period (15th June – 21st June) |                        |                  |

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