



Course Outline

1. Staff

Position	Email	Consultation times and contact details
Course convenor, Lecturer	m.gleitzman@unsw.edu.au	By appointment and email. Office: Mathews 1108. Phone: 9385 3019

By appointment
and email.

Tutorials	Class	Day	Time	Location	Tutor
Statistics Tutorials					

2.1 Course summary

The course deals with various experimental designs involving between and within subjects factors, for which some form of analysis of variance is an appropriate method of data analysis. Particular emphasis is placed on the use of simultaneous test procedures and simultaneous confidence intervals to produce coherent analyses of data from complex experiments.

Course Topics:

1. The two-group randomised experiment. Review of statistical inference on a comparison between two means: hypothesis tests and confidence intervals. Levels of inference: confidence interval inference, directional inference, inequality inference. Inferential errors - Type I, Type II and Type III errors, non-coverage errors. Practical equivalence inference.
2. The problem of multiple comparisons with more than two groups. Monte Carlo sampling experiments. Logical and statistical dependence among comparisons. Error rate units: Per-comparison error rate and familywise error rate. Error rates for individual t-test of maximal comparison when $J > 2$.
3. Controlling the familywise error rate for test of the maximal comparison. The Tukey (Honestly Significant Difference) multiple comparison procedure (MCP) based on the range of means. Properties of the Tukey simultaneous test procedure (S9

13. Bonferroni t procedures for analyses based on planned main effect and interaction contrasts for between-subjects factorial designs.
14. Planned and post hoc coherent analyses of $J \times K$ factorial designs allowing for inferences on simple effects. The A (or B) simple-effects model and the A(B) [or B(A)] family of contrasts. The all-factorial-contrasts family.
15. Single factor within subjects design. Planned analyses of within subjects contrasts. The MANOVA (multivariate analysis of variance) model vs ANOVA (univariate analysis of variance) model analysis for single-factor within-subjects data. Assumptions.
16. Two-factor mixed designs, $B \times (W)$ with one between subjects factor and one within subjects factor. Planned analyses of main and interaction contrasts, based on the two-factor model. The multivariate vs univariate model for mixed factorial designs. Planned analyses of $B \times (W)$ factorial designs allowing for inferences on simple effect contrasts.
17. Two-factor within-Ss designs, $(W \times W)$. Planned analyses of main and interaction contrasts based on two-factor multivariate model. Planned analyses allowing for inferences on simple effect contrasts.

2.2 Course aims

This course builds upon the data analytic methods and concepts developed in PSYC2001 and is concerned with data analytic methods that allow for confident inference on generalised comparisons between means (contrasts) for between subjects designs with more than *two* groups, and within subjects designs with *two or more* occasions of measurement. The aims of the course are to provide you with a level of understanding of analysis of variance models and data analysis methods that will allow you to choose data analysis strategies for a range of experimental designs, and to critically evaluate findings of published experiments. The course aims to equip you with the skills necessary to carry out these analyses using statistical packages such as SPSS and PSY, and to interpret analysis outcomes.

2.3 Course learning outcomes (CLO)

At the successful completion of this course the student should be able to:

1. describe, apply and evaluate different inferential data analysis methods appropriate for single factor and two-way factorial designs with between-subjects and/or within-subjects factors; understand best practice in data analysis methods;
2. make heterogeneity inferences for overall tests, and make directional and confident inferences regarding estimates of treatment effects in contrasts analyses;
3. carry out a simple effects contrasts analysis of factorial data; carry out a trend contrasts analysis across levels of one or more quantitative factors;
4. use a statistical package (such as SPSS) and School of Psychology statistical program PSY to carry out these analyses.

3. Strategies and approaches to learning

3.1 Learning and teaching activities

The methods covered in this course deal with the analysis of data from *experimental* designs, which are often used in the sub disciplines of cognition, perception, social and developmental psychology, human and animal learning, and applied areas of psychology, and as such are relevant for the associated Level III Psychology Electives.

Course content for each topic will be discussed in Lectures, in the first instance, and then in statistics and computing tutorials. Tutorials provide students with an opportunity to consolidate and apply their understanding of course material. Practice activities will be posted to Moodle on a regular basis.

3.2 Expectations of students

It is expected that students

- are aware of UNSW Assessment policy and understand how to apply for special consideration if they are unable to complete an assignment/exam due to illness and/or misadventure;
- have read through the

5. Assessment

5.1 Assessment tasks

All assessments in this course have been designed and implemented in accordance with [UNSW Assessment Policy](#).

Assessment Task	Length	Weight
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Special Consideration: Students who are unable to complete an assessment task by the assigned due date can apply for special consideration.

UNSW operates under a Fit to Sit/ Submit rule for all assessments. If a student wishes to submit an application for special consideration for an exam or assessment, the application must be submitted prior to the start of the exam or before an assessment is submitted. If a student sits the exam/ submits an assignment, they are declaring themselves well enough to do so.

Special consideration applications must be submitted to the online portal along with Third Party

Referencing is a way of acknowledging the sources of information that you use to research your assignments. You need to provide a reference whenever you draw on someone else's words, ideas or research. Not referencing other people's work can constitute plagiarism.

Further information about referencing styles can be located at <https://student.unsw.edu.au/referencing>

Academic integrity is fundamental to success at university. Academic integrity can be defined as a commitment to six fundamental values in academic pursuits: honesty, trust, fairness, respect, responsibility and courage.¹ At UNSW, this means that your work must be your own, and others' ideas should be appropriately acknowledged. If you don't follow these rules, plagiarism may be detected in your work.

Further information about academic integrity and plagiarism can be located at:

The *Current Students* site <https://student.unsw.edu.au/plagiarism>, and

The *ELISE* training site <http://subjectguides.library.unsw.edu.au/elise/presenting>

The *Conduct and Integrity Unit* provides further resources to assist you to understand your conduct obligations as a student: <https://student.unsw.edu.au/conduct>.

7. Readings and resources

Textbook (recommended)	Bird, K.D. (2004). <i>Analysis of Variance via Confidence Intervals</i> . London: Sage Publications. NOTE: available online via UNSW Library Keppel, G., & Wickens, T. D. (2004). <i>Design and Analysis: A Researcher's Handbook</i> . (4th Ed.). Upper Saddle River, NJ: Pearson.
Course information	The PSYC3001 Moodle site provides course information and lecture slides, course notes and tutorial exercises, practice questions and activities, discussion forum and announcements, course resources. Most students should find that the lecture slides, course notes, tutorial handouts, practice questions and solutions provide enough material for understanding the course content and completing the assessments.
Required readings and materials	Students should bring a calculator to each tutorial, and to the Mid-semester test and Final Exam. Note: Students are required to use a <i>UNSW approved calculator</i> for the Final Exam. Information regarding this matter can be found on MyUnsw. School of Psychology Student Guide .

Recommended internet sites

[ELISE](#)

[Turnitin](#)

[Student Code of Conduct](#)

[Policy concerning academic honesty](#)

[Email policy](#)

[UNSW Anti-racism policy statement](#)