

MATH 2006 EXPERIMENTAL DESIGN AND ANALYSIS

Credit Points 10

Legacy Code 100013

Coordinator Michael Tyler ([https://directory.westernsydney.edu.au/search/name/Michael Tyler/](https://directory.westernsydney.edu.au/search/name/Michael%20Tyler/))

Description This unit is driven by the scientific method with a focus on experimental design and related data analysis. Research design and methodology and ethical issues, statistical concepts and techniques, computer analysis of data, and communicating research findings are all features of this unit, which build on the content in its prerequisite.

School Psychology

Discipline Statistics

Student Contribution Band HECS Band 1 10cp

Check your HECS Band contribution amount via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Undergraduate Level 2 subject

Pre-requisite(s) For students NOT enrolled in programs 1630 Graduate Diploma in Psychological Studies 1796 Graduate Diploma in Psychology and 1837 Bachelor of Cyber Security and Behaviour - BEHV 1016

Restrictions

Note that only students enrolled at WSU Online may register in the WSU Online subjects offered at that location.

This pre-requisite will not apply to students enrolled in courses 1630 Graduate Diploma in Psychological Studies, 1796 Graduate Diploma in Psychology and 1837 Bachelor of Cyber Security and Behaviour.

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Express understanding of the scientific method, and an appreciation of its role in developing psychological knowledge.
2. Demonstrate knowledge of experimental ethics and experimental research methodology and apply this methodology to experimental data.
3. Contrast basic experimental statistical techniques with emphasis on computerised analysis methods (SPSS).
4. Appraise the relationship between experimental design, collected data and the appropriate statistical technique.

Subject Content

Psychology as science. The role of research in psychology. Making research and ethical decisions. Reviewing the literature, forming research questions and hypotheses, operationalising constructs, choosing variables.

Experimental and quasi-experimental designs.

Between and within-subjects experimental designs.

Reporting experimental results. The publication manual of the APA.

Statistical concepts: Variance, the normal distribution, levels of measurement, descriptive and inferential statistics.

Descriptive statistics: Frequencies, graphical presentation, measures of central tendency, measures of variability, percentiles, z-scores. Inferential statistics: Populations and samples, sampling distributions, standard error, confidence intervals, significance, alpha, power. Parametric versus non-parametric statistics, assumptions. The t-tests, analysis of variance (ANOVA) and their non-parametric equivalents.

Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

Item	Length	Percent	Threshold	Individual/Group Task
Report	1,000 words	30	N	Individual
Portfolio	1 weekly exercise (= 500 words)	15	N	Individual
Quiz	30 questions	15	N	Individual
Final Exam	1 hour	40	N	Individual

Prescribed Texts

- 100013 'Experimental Design and Analysis' Custom Edition package. Available in the University bookshop.

Teaching Periods

Autumn

Bankstown

Day

Subject Contact Michael Tyler ([https://directory.westernsydney.edu.au/search/name/Michael Tyler/](https://directory.westernsydney.edu.au/search/name/Michael%20Tyler/))

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=MATH2006_22-AUT_BA_D#subjects)

Penrith (Kingswood)

Day

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View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=MATH2006_22-AUT_KW_D#subjects)

Parramatta - Victoria Rd

Day

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View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=MATH2006_22-AUT_PS_D#subjects)

WSU Online TRI-1

Wsu Online

Online

Subject Contact David-Jack Fletcher ([https://directory.westernsydney.edu.au/search/name/David-Jack Fletcher/](https://directory.westernsydney.edu.au/search/name/David-Jack%20Fletcher/))

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=MATH2006_22-OT1_OW_O#subjects)

WSU Online TRI-3

Wsu Online

Online

Subject Contact David-Jack Fletcher ([https://directory.westernsydney.edu.au/search/name/David-Jack Fletcher/](https://directory.westernsydney.edu.au/search/name/David-Jack%20Fletcher/))

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=MATH2006_22-OT3_OW_0#subjects)