

MATH 2006 EXPERIMENTAL DESIGN AND ANALYSIS

Credit Points 10

Legacy Code 100013

Coordinator Tuki Attuquayefio (<https://directory.westernsydney.edu.au/search/name/Tuki Attuquayefio/>)

Description This subject 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 subject, which build on the content in its prerequisite.

School Psychology

Discipline Statistics

Student Contribution Band HECS Band 1 10cp

Check your fees 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.

Type	Length	Percent	Threshold	Individual/Group Task
Log/ Workbook	500 words	10	N	Individual
Quiz	20 questions	10	N	Individual
Log/ Workbook	500 words	10	N	Individual
Log/ Workbook	500 words	10	N	Individual
Quiz	20 questions	10	N	Individual
Poster	500 words	20	N	Individual
Report	1,000 words	30	N	Individual

Prescribed Texts

- Navarro DJ and Foxcroft DR (2022). learning statistics with jamovi: a tutorial for psychology students and other beginners. (Version 0.75). DOI: 10.24384/hgc3-7p15
- McAlleer, P. (2022). A Handy Workbook for Research Methods & Statistics (0.0.9012). Zenodo. <https://doi.org/10.5281/zenodo.5934243> (<https://zenodo.org/records/5934243/>)
- Peter K. Dunn (2023). Scientific Research and Methodology: An introduction to quantitative research in science and health. <https://bookdown.org/pkaldunn/SRM-Textbook> (<https://bookdown.org/pkaldunn/SRM-Textbook/>)
- Crump, M. J. C., Navarro, D. J., & Suzuki, J. (2019, June 5). Answering Questions with Data (Textbook): Introductory Statistics for Psychology Students. <https://doi.org/10.17605/OSF.IO/JZE52> (<https://osf.io/jze52/>)

Teaching Periods

WSU Online TRI-1 (2024)

Wsu Online

Online

Subject Contact Tuki Attuquayefio (<https://directory.westernsydney.edu.au/search/name/Tuki Attuquayefio/>)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=MATH2006_24-OT1_OW_2#subjects)

Autumn (2024)

Bankstown City

On-site

Subject Contact Tuki Attuquayefio (<https://directory.westernsydney.edu.au/search/name/Tuki Attuquayefio/>)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=MATH2006_24-AUT_BK_1#subjects)

Penrith (Kingswood)

On-site

Subject Contact Tuki Attuquayefio (<https://directory.westernsydney.edu.au/search/name/Tuki Attuquayefio/>)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=MATH2006_24-AUT_KW_1#subjects)

Parramatta - Victoria Rd

On-site

Subject Contact Tuki Attuquayefio (<https://directory.westernsydney.edu.au/search/name/Tuki Attuquayefio/>)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=MATH2006_24-AUT_PS_1#subjects)

WSU Online TRI-3 (2024)

Wsu Online

Online

Subject Contact Rosalind Priestman (<https://directory.westernsydney.edu.au/search/name/Rosalind Priestman/>)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=MATH2006_24-OT3_OW_2#subjects)