

# MATH 2006 EXPERIMENTAL DESIGN AND ANALYSIS

**Credit Points** 10

**Legacy Code** 100013

**Coordinator** Tuki Attuquayefio ([https://directory.westernsydney.edu.au/search/name/Tuki Attuquayefio/](https://directory.westernsydney.edu.au/search/name/Tuki%20Attuquayefio/))

**Description** This subject builds upon the learning presented in BEHV1003 and is supported by the scientific method. In this subject, students will extend their knowledge of research methods, acquiring skills in design and analysis of research data. Emphasis will be placed on the importance of appropriate study design to suit the research question. A number of methodological approaches and data collection techniques are examined and evaluated. Students are also introduced to hypothesis testing, working with data, analysis of data and communicating research findings.

**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/](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. Translate psychological issues into measurable research questions with appropriate methods of investigation (APAC GAs 1.1, 1.1xii, 1.3)
2. Select appropriate methodology and conduct analysis of data (APAC GA 1.1, 1.1xii, 1.2, 1.3)
3. Clean data and present data outcomes visually (APAC GA1.1xii)
4. Interpret and communicate research results (APAC GAs 1.1, 1.1xii, 1.3)
5. Appropriately choose research methods and articulate of their limitations and implications for reliability and validity (APAC GAs 1.1xii, 1.2, 1.3)

## Subject Content

- Introduction to Experimental Design and Analysis; Research questions: forming research questions and hypotheses
- Research design and methodology
- Research methods: Reliability and validity

- Distributions and descriptive statistics
- Dealing with data
- Hypothesis testing and inferential statistics
- Estimating relationships in Psychological Studies; Correlational data
- Designing and conducting experiments with two groups: Independent and paired samples t-tests
- Designing and conducting experiments with more than two groups: One-way ANOVA
- Reporting experimental results. The publication manual of the APA.
- Reproducible research in psychology
- Summary and Review

## 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	Mandatory Task
Report	1,000 words	40	N	Individual	N
Log/ Workbook	3 submission 500 words each	30	N	Individual	N
Participation	5-10 minutes	10	N	Individual	N
Poster	500 words	20	N	Individual	N

## WSU Online Trimesters

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	Mandatory Task
Log/ Workbook	1,500 words (3 x 500 words)	30	N	Individual	N
Quiz	N/A	10	N	Individual	N
Poster	500 words	20	N	Individual	N
Report	1,000 words	40	N	Individual	N

## 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
- McAleer, 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

## **Autumn (2025)**

### **Bankstown City**

**On-site**

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

View timetable ([https://classregistration.westernsydney.edu.au/odd/timetable/?subject\\_code=MATH2006\\_25-AUT\\_BK\\_1#subjects](https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=MATH2006_25-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/odd/timetable/?subject\\_code=MATH2006\\_25-AUT\\_KW\\_1#subjects](https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=MATH2006_25-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/odd/timetable/?subject\\_code=MATH2006\\_25-AUT\\_PS\\_1#subjects](https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=MATH2006_25-AUT_PS_1#subjects))

## **WSU Online TRI-2 (2025)**

### **Wsu Online**

**Online**

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

View timetable ([https://classregistration.westernsydney.edu.au/odd/timetable/?subject\\_code=MATH2006\\_25-OT2\\_OW\\_2#subjects](https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=MATH2006_25-OT2_OW_2#subjects))