PSYC8863

Research Design and Evaluation

Session 1, In person-scheduled-weekday, North Ryde 2022

School of Psychological Sciences

Contents

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General Information

Unit convenor and teaching staff Natasha Magson natasha.magson@mq.edu.au
Credit points 10
Prerequisites Admission to MClinPsych or MClinNeuro or MOrgPsych
Corequisites
Co-badged status
Unit description This unit exposes students to a range of advanced quantitative statistical methods that are useful in research in psychology. The intent of the unit is to explain underlying concepts rather than teach deeper technical detail. Students completing the unit should have an appreciation of when a variety of advanced statistical methods are appropriate, be able to undertake simple analyses, understand how to interpret the results of these analyses and how to assess publications that have used these methods. Content includes a refresher on statistical study design, critical appraisal of published research, common data analysis methods and a number of methods for longitudinal and complex-sampled data, latent variable models as well as meta-analysis.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes

On successful completion of this unit, you will be able to:

ULO1: Design a study and formulate appropriate hypotheses and ways of testing them.

ULO2: Select analytic techniques that are appropriate for the data and which allow valid tests of hypotheses, and research questions to be answered.

ULO3: Apply a selection of Stata commands and procedures to undertake quantitative statistical analyses.

ULO4: Knowledgably apply the specific analytic methods learnt in their optional modules.

General Assessment Information

1. Late submissions will receive a 5% per day penalty including weekends and public holidays, unless an extension has been granted through special consideration. No late submissions will be accepted more than 5 days after the submission deadline, unless special consideration has been granted.

2. All extensions need to be formally requested in line with the special consideration policy.

3. Sitting the final exam is compulsory in order to be eligible to pass the unit. Any student who does not attempt the final exam will be granted a Fail Absent grade. Students are expected to make themselves available for the final exam, at the date and time set by the University, in line with the Assessment Policy and Procedure.

4. Word count penalty: 5% of the possible mark will be deducted per 100 words over the word limit for the assessment task. An additional 99 words beyond the limit can be written without penalty.

Assessment Tasks

Name	Weighting	Hurdle	Due
Topic Quizzes	20%	No	5pm Friday of Weeks 3,4, 5, and 6
Practical Project	50%	No	5pm Friday 13th of May (Week 10)
Final Examination	30%	No	9am 1st of June (Week 13)

Topic Quizzes

Assessment Type [1]: Quiz/Test
Indicative Time on Task [2]: 32 hours
Due: **5pm Friday of Weeks 3,4, 5, and 6**
Weighting: **20%**

4 Compulsory quizzes of 5 questions each delivered via iLearn. The quiz will be comprised of multiple choice, fill-in-the-blank and short answer questions. Each quiz will be available for seven days but once commenced must be completed within 3 hours.

On successful completion you will be able to:
- Select analytic techniques that are appropriate for the data and which allow valid tests of hypotheses, and research questions to be answered.
- Apply a selection of Stata commands and procedures to undertake quantitative statistical analyses.

Practical Project

Assessment Type [1]: Quantitative analysis task
Indicative Time on Task [2]: 45 hours
Due: **5pm Friday 13th of May (Week 10)**
Weighting: **50%**

Each student selects an elective topic and writes a short scientific report – up to 3000 words

On successful completion you will be able to:

- Design a study and formulate appropriate hypotheses and ways of testing them.
- Select analytic techniques that are appropriate for the data and which allow valid tests of hypotheses, and research questions to be answered.
- Apply a selection of Stata commands and procedures to undertake quantitative statistical analyses.
- Knowledgably apply the specific analytic methods learnt in their optional modules.

Final Examination

Assessment Type [1]: Examination
Indicative Time on Task [2]: 16 hours
Due: **9am 1st of June (Week 13)**
Weighting: **30%**

Invigilated two-hour multiple choice exam of 40 questions in open book format. Thirty questions are compulsory and a further 10 are student selected.

On successful completion you will be able to:

- Select analytic techniques that are appropriate for the data and which allow valid tests of hypotheses, and research questions to be answered.
- Apply a selection of Stata commands and procedures to undertake quantitative statistical analyses.

[1] If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the Writing Centre for academic skills support.

[2] Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

Delivery and Resources

Structure of the unit

Every student will study five (5) learning modules in this unit of which four are compulsory topics and the remaining is selected by the student from three (3) available elective modules. Compulsory modules are selected on the basis of being useful topics for any quantitative research topic, while the student-selected modules allow students to somewhat tailor the unit to their individual needs.

Compulsory modules (all must be undertaken)

1. Design and sample size determination
2. Data manipulation and basic statistical analysis in Stata (although students may use other software if they prefer)
3. Revision of the General Linear model using Stata
4. Dealing with missing values in data

Student-selected modules (select one)

1. Latent variable models
2. Multi-level and Longitudinal models
3. Meta-analysis

Format of the unit

The unit is largely delivered by downloadable video lectures that combine a classical lecture with demonstration of practical application using Stata and are available for download at the start of or early in semester. All compulsory topics do, however, have one-hour face-to-face tutorial sessions at which attendance is strongly recommended but not compulsory. All elective modules have an associated in-person workshop at which attendance is strongly recommended but also not compulsory. The purpose of the workshops is to provide an opportunity to address unresolved questions prior to the final exam. **Important note**: To achieve this it will be necessary for each student to have viewed the module video and thought about their project prior to attending the workshop.

The unit is graded using the standard categories of Fail, Pass, Credit, Distinction and High Distinction. Further details concerning the exam will be provided during the unit. The project report and take home exam will be submitted to the Grademark system that is part of iLearn. You may collaborate in preparatory work for assignments; however, the report submitted must be of your own work. If two or more students are found to have submitted material which is identical, or near to identical, they will be asked to re-submit the material from the affected section or else share the marks with the other student(s) who submitted the same material. NB: Make sure you keep a complete copy of each of your submitted works should it be needed. This unit does not publish previous end-of-semester exam papers due to the assessment format which involves multiple choice questions drawn from a bank of questions which have undergone a process of development and validation to assess a wide range of concepts in this unit. Assessment quality

can only be ensured by maintaining the integrity of the question bank rather than creating entirely new questions every year. However a practice exam will be provided via iLearn near the end of semester.

Unit Schedule

Week	Week Starting	Workshop content	Assessment
1	21-February	Admin & unit overview	
2	28-February	No class	
3	7-March	No class	Quiz 1 due
4	14-March	Quiz 1 review & Elective topic workshop 1	Quiz 2 due
5	21-March	Quiz 2 review & Elective topic workshop 2	Quiz 3 due
6	28-March	Quiz 3 review & Elective topic workshop 3	Quiz 4 due
7	4-April	Quiz 4 review	
	11 & 18-April	Mid-session break	
8	25-April	Project advising**	
9	2-May	No class	
10	9-May	No class	Project report due
11	16-May	Exam preparation session	
12	23-May	No class	
13	30-May	Final exam (in-class)	Final exam

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://policies.mq.edu.au). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- Academic Appeals Policy
- Academic Integrity Policy
- Academic Progression Policy

- Assessment Policy

- Fitness to Practice Procedure

- Assessment Procedure

- Complaints Resolution Procedure for Students and Members of the Public

- Special Consideration Policy

Students seeking more policy resources can visit Student Policies (https://students.mq.edu.au/support/study/policies). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit Policy Central (https://policies.mq.edu.au) and use the search tool.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/admin/other-resources/student-conduct

Results

Results published on platform other than eStudent, (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit ask.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

Academic Integrity

At Macquarie, we believe academic integrity – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free online writing and maths support, academic skills development and wellbeing consultations.

Grading

Macquarie University follow standards-based assessment of student performance. All individual assessment tasks are subject to moderation, consistent with the Assessment Policy and Procedure. A student's final mark for this unit, and associated grade, must reflect their attainment of the unit learning outcomes, and is not necessarily a simple summation of their individual assessment items.

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

The Writing Centre

The Writing Centre provides resources to develop your English language proficiency, academic

writing, and communication skills.

- Workshops
- Chat with a WriteWISE peer writing leader
- Access StudyWISE
- Upload an assignment to Studiosity
- Complete the Academic Integrity Module

The Library provides online and face to face support to help you find and use relevant information resources.

- Subject and Research Guides
- Ask a Librarian

Student Services and Support

Macquarie University offers a range of Student Support Services including:

- IT Support
- Accessibility and disability support with study
- Mental health support
- Safety support to respond to bullying, harassment, sexual harassment and sexual assault
- Social support including information about finances, tenancy and legal issues

Student Enquiries

Got a question? Ask us via AskMQ, or contact Service Connect.

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the Acceptable Use of IT Resources Policy. The policy applies to all who connect to the MQ network including students.