



# PSYH4418

## Design and Statistics IV

Session 2, Special circumstances 2021

*Archive (Pre-2022) - Department of Psychology*

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#### Disclaimer

Macquarie University has taken all reasonable measures to ensure the information in this publication is accurate and up-to-date. However, the information may change or become out-dated as a result of change in University policies, procedures or rules. The University reserves the right to make changes to any information in this publication without notice. Users of this publication are advised to check the website version of this publication [or the relevant faculty or department] before acting on any information in this publication.

#### Session 2 Learning and Teaching Update

The decision has been made to conduct study online for the remainder of Session 2 for all units WITHOUT mandatory on-campus learning activities. Exams for Session 2 will also be online where possible to do so.

This is due to the extension of the lockdown orders and to provide certainty around arrangements for the remainder of Session 2. We hope to return to campus beyond Session 2 as soon as it is safe and appropriate to do so.

Some classes/teaching activities cannot be moved online and must be taught on campus. You should already know if you are in one of these classes/teaching activities and your unit convenor will provide you with more information via iLearn. If you want to confirm, see the list of [units with mandatory on-campus classes/teaching activities](#).

Visit the [MQ COVID-19 information page](#) for more detail.

## General Information

Unit convenor and teaching staff

Naomi Sweller

[naomi.sweller@mq.edu.au](mailto:naomi.sweller@mq.edu.au)

Credit points

10

Prerequisites

Corequisites

PSYH490 or PSYH4490 or PSYH495 or PSYH4495 or PSYH4491 or PSYH4492

Co-badged status

Unit description

This unit is designed as preparation for honours projects and to help equip students for research careers. The unit focuses on practical issues of quantitative data analysis. Most topics are dealt with in the context of Stata. Topics include sample size and statistical power analysis, data management in Stata and more advanced methods specifically applicable to research in psychology.

## 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:** Make connections between principles of good research design and relevant research questions, and correctly apply designs to the appropriate question.

**ULO2:** Demonstrate an understanding of how abstract concepts are operationalised in statistical terms in psychological research.

**ULO3:** Apply and interpret advanced statistical methods to research in psychology.

**ULO4:** Demonstrate an enhanced practical understanding of statistical software used in psychological research, with a focus on understanding the syntax required to carry out analyses and interpreting output.

## General Assessment Information

### Final examination information

The final exam for this unit is currently scheduled to occur on Macquarie University campus. Students are expected to make themselves available for the exam, at the date and time set by the University, in line with the Assessment Policy and Procedure.

This will be a 2-stage exam, with a team-work component. The exam will be a mixture of multiple choice and “fill in the blank” short answer questions. The procedure is such that you will first sit the exam individually, and then immediately afterwards in the same time slot you will do the exam again in groups of approximately four. The exams will then be graded such that 90% of the score comes from the individual attempt, and 10% from the group attempt, unless the individual attempt is better than the group attempt, in which case the student will get 100% of their score from the individual attempt.

I will be allocating all students to groups. I will post the group allocations to iLearn in the week prior to the exam. All allocations will be completely random and based on a random number generator.

If a student misses the exam due to illness or other unavoidable circumstances they can sit a supplementary exam which will contain only an individual component, with no group component (following University guidelines that the supplementary exam does not need to be the same format as the original exam). If a student has special circumstances such as the need for a longer testing time, they will sit the individual exam at the same time as the rest of the group, but they may start the exam earlier to enable them to finish the individual component with enough time to commence the group component with the rest of their group.

Students who are unable to sit an examination must advise the Honours administrator (Ms Donna Keeley, 9850 8113, [ask@mq.edu.au](mailto:ask@mq.edu.au)) and submit an Application for Special Consideration form (supporting documentation from a medical or health care professional clearly stating the reasons for the absence from the exam must be attached to your submission). All documentation must be submitted to Donna Keeley no later than 24 hours after the date of the exam. The only exception to not sitting an examination at the designated time is because of documented illness or unavoidable disruption. In these circumstances you may wish to consider applying for Special Consideration.

If a Supplementary Examination is granted as a result of the Special Consideration process, the examination will be held one week after the original examination date.

Supplementary Exams are only offered to students who have satisfactorily completed all other assessments for the unit and were unable to sit the final exam because of documented illness or unavoidable disruption. Supplementary assessment tasks will only be provided following an approved Special Consideration application, and only when appropriate. Supplementary assessment tasks, including supplementary exams, can be in a different format to the original assessment task.

You are advised that it is Macquarie University policy not to set early examinations for individuals or groups of students. All students are expected to ensure that they are available until the end of

the teaching semester, which is the final day of the official examination period.

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.

### Research proposal form information

The Research Proposal Form is designed to help you with the process of planning your empirical project. It consists of a series of short answer questions, to which you will be required to write a response. Responses may include Stata syntax. The questions contained in the form will be made available in Week 1. All submissions are to be through Turnitin in iLearn.

Penalties will be levied for late submission of the assignment: Late submissions, without an approved extension, will receive a 5% per day penalty including weekends and public holidays. In other words, the assignment is worth 40%, so a penalty of  $5\% \times 40 = 2$  will be applied. 2 marks are subtracted from whatever the student received for the report for each day late. If you submit the assessment task 10 days or more beyond the due date, you will be awarded a maximum of 50% of the overall assessment marks. No further submissions will be accepted after the marked assignments are returned and feedback is released to students. Marks and feedback will be released to students on 24/09/21, or earlier if all assignments are submitted on time.

All extensions need to be formally requested via [ask.mq.edu.au](http://ask.mq.edu.au) in line with the special consideration policy.

Any requests for remark need to follow the Psychology process and must be applied within 2 weeks of the assessment task being returned. Information will be provided on iLearn.

It is Psychology policy that letter grades, not numeric marks, are released for written assessment tasks.

### Fit to sit model

Students who sit an exam and/or in-class test or otherwise submit an assessment, declare themselves fit to do so and will not be eligible to apply for special consideration unless there is evidence that (a) they were unfit to make reasonable judgement on their fitness to undertake the assessment, due to mental illness or other exceptional circumstances; or they were taken ill during the assessment (in the case of an examination or test), and this can be independently corroborated.

## Assessment Tasks

Name	Weighting	Hurdle	Due
<a href="#"><u>Final Examination</u></a>	60%	No	Week 13
<a href="#"><u>Plan (Research): Research Proposal Form</u></a>	40%	No	10/09/2021

## Final Examination

Assessment Type <sup>1</sup>: Examination

Indicative Time on Task <sup>2</sup>: 54 hours

Due: **Week 13**

Weighting: **60%**

Final examination held in scheduled class time, in accordance with relevant requirements.

On successful completion you will be able to:

- Make connections between principles of good research design and relevant research questions, and correctly apply designs to the appropriate question.
- Demonstrate an understanding of how abstract concepts are operationalised in statistical terms in psychological research.
- Apply and interpret advanced statistical methods to research in psychology.
- Demonstrate an enhanced practical understanding of statistical software used in psychological research, with a focus on understanding the syntax required to carry out analyses and interpreting output.

## Plan (Research): Research Proposal Form

Assessment Type <sup>1</sup>: Plan

Indicative Time on Task <sup>2</sup>: 50 hours

Due: **10/09/2021**

Weighting: **40%**

The Research Proposal Form is designed to help you with the process of planning your empirical project. No word limit required.

On successful completion you will be able to:

- Make connections between principles of good research design and relevant research questions, and correctly apply designs to the appropriate question.
- Demonstrate an understanding of how abstract concepts are operationalised in statistical terms in psychological research.
- Apply and interpret advanced statistical methods to research in psychology.
- Demonstrate an enhanced practical understanding of statistical software used in psychological research, with a focus on understanding the syntax required to carry out analyses and interpreting output.

<sup>1</sup> 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.

<sup>2</sup> 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

### Textbooks

There are two textbooks for this unit, both available through the Library:

Tabachnick, B., & Fidell, L. (2019). *Using Multivariate Statistics* (7th ed.). New York, NY: Pearson.

Keith, T. Z. (2019). *Multiple regression and beyond: an introduction to multiple regression and structural equation modeling* (3rd ed.). New York, NY: Routledge.

Please note that the previous editions of the textbooks will be acceptable for use in this unit. Page numbers may differ from those noted for the most recent editions, and you should check carefully with the library holdings of the prescribed editions that the content is equivalent.

### Additional reading

There is an additional reading for the week on power and sample size:

Lachin, J. M. (1981). Introduction to sample size determination and power analysis for clinical trials. *Controlled Clinical Trials*, 2, 93-113.

### Classes

Thirteen weeks: 12 x 2-hour lecture and 1-hour demonstration pre-recorded, and available through iLearn. In addition, there will be a 1-hour Question and Answer session conducted live, via Zoom. The final examination will be held in the Week 13 Q&A slot.

Lectures will involve demonstrations of Stata procedures, using various examples. Theoretical issues will also be discussed during the lectures.

Practical exercises will be set each week for students to undertake in their own time. There will be a demonstration session in addition to the lecture in which the lecturer will show how they would approach the exercises.

Students are expected to complete readings prior to listening to the lecture, and they are expected to participate in Q&A sessions if they have any questions about the content.

## Unit Schedule

Week	Lecture topic	Required reading
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1	Introduction to unit, Research Ethics, Data manipulation in Stata	<a href="https://www.nhmrc.gov.au/about-us/publications/national-statement-ethical-conduct-human-research-2007-updated-2018">https://www.nhmrc.gov.au/about-us/publications/national-statement-ethical-conduct-human-research-2007-updated-2018</a> (not required to be read before class)
2	Introduction to sample size and statistical power analysis	Tabachnick & Fidell, sections 1.5, 3.1.2. Lachin journal article
3	Interactions in regression (including categorical and continuous predictors)	Tabachnick & Fidell, section 5.6.6 Keith, Chapters 7 & 8
4	Advanced Logistic Regression #1	Keith, Chapter 11 (logistic regression section only) Tabachnick & Fidell, Chapter 10
5	Advanced Logistic Regression #2	Tabachnick & Fidell, Chapter 10
6	MANOVA #1	Tabachnick & Fidell, Chapter 7
7	MANOVA #2	Tabachnick & Fidell, Chapter 7
8	Path Analyses with Regression	Keith, Chapters 12 & 13 Tabachnick & Fidell, section 5.6.7
9	Path Analyses through SEM	Keith, Chapter 14 Tabachnick & Fidell, Chapter 14 (this chapter is optional and includes much more detail than needed)
10	Exploratory Factor Analysis #1	Tabachnick & Fidell, Chapter 13
11	Exploratory Factor Analysis #2	Tabachnick & Fidell, Chapter 13
12	Confirmatory Factor Analysis	Keith, Chapter 16
13	Final examination	

## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](https://policies.mq.edu.au) (<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](#)
- [Grade Appeal Policy](#)
- [Complaint Management Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#)

Students seeking more policy resources can visit [Student Policies \(https://students.mq.edu.au/support/study/policies\)](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 \(https://policies.mq.edu.au\)](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](https://ask.mq.edu.au) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## Grading

Macquarie University, and Psychology undergraduate courses, 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 isn't 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/>

## Learning Skills

Learning Skills ([mq.edu.au/learningskills](https://mq.edu.au/learningskills)) provides academic writing resources and study strategies to help you improve your marks and take control of your study.

- [Getting help with your assignment](#)
- [Workshops](#)
- [StudyWise](#)
- [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

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

## Student Enquiries

For all student enquiries, visit Student Connect at [ask.mq.edu.au](http://ask.mq.edu.au)

If you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## IT Help

For help with University computer systems and technology, visit [http://www.mq.edu.au/about\\_us/offices\\_and\\_units/information\\_technology/help/](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.