



# STAX1103

## Introduction to Psychological Design and Statistics

Session 2, Fully online/virtual 2021

*Archive (Pre-2022) - Department of Mathematics and Statistics*

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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.

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## General Information

Unit convenor and teaching staff

Convener

Petra Graham

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Department of Mathematics and Statistics

See iLearn for consultation hours.

Convenor

Alissa Beath

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Department of Psychology

See iLearn for consultation hours

Credit points

10

Prerequisites

Corequisites

Co-badged status

Unit description

This unit provides students with an introduction to research design and statistical analysis. In this unit, students will learn about common research methods used in psychology and related disciplines, critically analyse these methods, and be able to conduct their own analyses. Both experimental and non-experimental research methods are covered, as well as a variety of statistical tests, including t-tests, correlation, and chi square analyses.

Students will learn data management techniques and appropriate methods to summarise data, including both numeric and graphical summaries. Students will also gain hands-on experience using the statistical software Stata.

## 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:** Describe common research designs in psychological science and draw appropriate conclusions consistent with the research design.

**ULO2:** Describe statistical techniques in psychological science, including both significance testing and effect sizes, and apply these tests appropriately to research designs.

**ULO3:** Conduct statistical tests appropriately, including using statistical software, and draw appropriate conclusions.

**ULO4:** Summarise data, both numerically and graphically, including using statistical software.

**ULO5:** Critically evaluate research, research designs, and statistical testing in psychological science.

**ULO6:** Effectively communicate research findings, both formally and informally.

## General Assessment Information

You will be using the software package **Stata** throughout the unit including for all of the assessments and practical classes. See how to download Stata for in the Delivery and Resources section, below, and in the Required Resources area of the Unit Orientation block in iLearn.

**ATTENDANCE and PARTICIPATION:** There are weekly set tutorial and practical activities. You should complete these activities in the week that they are set. Your tutor will be available via the discussion forum and email to help with tutorial activities. You should attend one of the weekly zoom practical classes as detailed in iLearn.

**ASSIGNMENT SUBMISSION:** Assignment submission will be online through the iLearn page.

Submit assignments online via the appropriate assignment link on the iLearn page. A personalised cover sheet is not required with online submissions. Read the submission statement carefully before accepting it as there are substantial penalties for making a false declaration.

- Assignment submission is via iLearn. You should upload this as a single scanned PDF file.
- Please note the quick guide on how to upload your assignments provided on the iLearn page.
- Please make sure that each page in your uploaded assignment corresponds to only one A4 page (do not upload an A3 page worth of content as an A4 page in landscape). If you are using an app like Clear Scanner, please make sure that the photos you are using are clear and shadow-free.
- It is your responsibility to make sure your assignment submission is legible.
- If there are technical obstructions to your submitting online, please email us to let us

know.

You may submit as often as required prior to the due date/time. Please note that each submission will completely replace any previous submissions. It is in your interests to make frequent submissions of your partially completed work as insurance against technical or other problems near the submission deadline. You can apply for Special Consideration via [ask.mq.edu.au](https://ask.mq.edu.au) if there are reasonable grounds for non-submission.

**LATE SUBMISSION OF WORK:** All assessment tasks must be submitted by the official due date and time. In the case of a late submission for a non-timed assessment (e.g. an assignment), if special consideration has NOT been granted, 20% of the earned mark will be deducted for each 24-hour period (or part thereof) that the submission is late for the first 2 days (including weekends and/or public holidays). For example, if an assignment is submitted 25 hours late, its mark will attract a penalty equal to 40% of the earned mark. After 2 days (including weekends and public holidays) a mark of 0% will be awarded. Timed assessment tasks (e.g. tests, examinations) do not fall under these rules.

**WORD LIMIT POLICY:** 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.

**FINAL EXAM POLICY:** 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, that is, the final day of the official examination period. The only excuse for not sitting an examination at the designated time is because of documented illness or unavoidable disruption. In these special circumstances, you may apply for special consideration via [ask.mq.edu.au](https://ask.mq.edu.au).

If you receive special consideration for the final exam, a supplementary exam will be scheduled in the interval between the regular exam period and the start of the next session. By making a special consideration application for the final exam you are declaring yourself available for a resit during this supplementary examination period and will not be eligible for a second special consideration approval based on pre-existing commitments. Please ensure you are familiar with the policy prior to submitting an application. Approved applicants will receive an individual notification one week prior to the exam with the exact date and time of their supplementary examination.

## Assessment Tasks

Name	Weighting	Hurdle	Due
<a href="#"><u>Research Report part 1</u></a>	15%	No	Week 6
<a href="#"><u>Research Report part 2</u></a>	25%	No	Week 11
<a href="#"><u>Online quizzes</u></a>	20%	No	Weeks 3, 8 and 13
<a href="#"><u>Final Examination</u></a>	40%	No	University Exam Period

## Research Report part 1

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

Indicative Time on Task <sup>2</sup>: 15 hours

Due: **Week 6**

Weighting: **15%**

Students will submit the first part of a psychology research report in APA format.

On successful completion you will be able to:

- Describe common research designs in psychological science and draw appropriate conclusions consistent with the research design.
- Critically evaluate research, research designs, and statistical testing in psychological science.
- Effectively communicate research findings, both formally and informally.

## Research Report part 2

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

Indicative Time on Task <sup>2</sup>: 20 hours

Due: **Week 11**

Weighting: **25%**

Students will submit the remainder of the psychology research report in APA format that they began in Part 1.

On successful completion you will be able to:

- Describe common research designs in psychological science and draw appropriate conclusions consistent with the research design.
- Describe statistical techniques in psychological science, including both significance testing and effect sizes, and apply these tests appropriately to research designs.
- Conduct statistical tests appropriately, including using statistical software, and draw appropriate conclusions.
- Summarise data, both numerically and graphically, including using statistical software.
- Critically evaluate research, research designs, and statistical testing in psychological science.

- Effectively communicate research findings, both formally and informally.

## Online quizzes

Assessment Type <sup>1</sup>: Quiz/Test

Indicative Time on Task <sup>2</sup>: 10 hours

Due: **Weeks 3, 8 and 13**

Weighting: **20%**

Multiple online quizzes spread across the session containing short answer and/or multiple choice questions testing both conceptual understanding and practical application of skills.

On successful completion you will be able to:

- Describe common research designs in psychological science and draw appropriate conclusions consistent with the research design.
- Describe statistical techniques in psychological science, including both significance testing and effect sizes, and apply these tests appropriately to research designs.
- Conduct statistical tests appropriately, including using statistical software, and draw appropriate conclusions.
- Summarise data, both numerically and graphically, including using statistical software.
- Critically evaluate research, research designs, and statistical testing in psychological science.
- Effectively communicate research findings, both formally and informally.

## Final Examination

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

Indicative Time on Task <sup>2</sup>: 5 hours

Due: **University Exam Period**

Weighting: **40%**

Formal examination testing the learning outcomes of the unit.

On successful completion you will be able to:

- Describe common research designs in psychological science and draw appropriate conclusions consistent with the research design.
- Describe statistical techniques in psychological science, including both significance

testing and effect sizes, and apply these tests appropriately to research designs.

- Conduct statistical tests appropriately, including using statistical software, and draw appropriate conclusions.
- Summarise data, both numerically and graphically, including using statistical software.
- Critically evaluate research, research designs, and statistical testing in psychological science.
- Effectively communicate research findings, both formally and informally.

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<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

### Delivery:

Lectures will be delivered online via the iLearn site. Tutorial and practical activities are facilitated via the iLearn site and are to be completed weekly, beginning in Week 2.

### Resources:

Please see iLearn before purchasing these texts

- Beins, B., & McCarthy, M. (2018). *Research Methods and Statistics in Psychology* (2nd ed.). Cambridge: Cambridge University Press. doi:10.1017/9781108399555
- Weinberg, S., & Abramowitz, S. (2020). *Statistics Using Stata: An Integrative Approach* (2nd ed.). Cambridge: Cambridge University Press. doi:10.1017/9781108770163
- American Psychological Association (2020). *Publication manual of the American Psychological Association* (7th ed.). Washington, DC: American Psychological Association.

**Technology Used and Required:** All unit material is delivered through iLearn. The link may be found at <http://ilearn.mq.edu.au>. This unit requires use of a laptop or desktop computer so that the statistical package Stata can be installed and used; Stata can be downloaded for free from the university through the following link: <https://students.mq.edu.au/support/technology/software/stata>. Students can also install the Microsoft Office Suite (containing Excel and Word etc) for free, this may be useful for report writing and data set handling (<https://students.mq.edu.au/support/technology/software/microsoft>).



## Unit Schedule

See iLearn for details of assessment delivery and timings. Note that this schedule is subject to change if necessary.

Week	Topic	Assessments
1	Introduction	
2	Research design and analysis; Stata demonstration	
3	Hypothesis testing	Quiz 1
4	Ethics + Measurement	
5	One-sample tests	
6	Non-experimental designs	Report part 1
7	Experimental designs	
	<i>Mid-session break</i>	
8	Categorical data analysis	Quiz 2
9	Longitudinal designs	
10	Mixed methods	
11	Best practice in Psychological Science	Report part 2
12	Putting it all together	
13	Conclusions	Quiz 3
	<i>Final examination period</i>	

## 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](http://ask.mq.edu.au) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## 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](http://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](#)

## OUA support and policies

For information and administrative processes specific to OUA studies, please see this website: <https://students.mq.edu.au/study/faculties/open-universities-australia>

## 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.

## OUA Student Information

For information for current OUA students at Macquarie University, see this website: <https://students.mq.edu.au/study/my-study-program/oua-student-information>