



STAT1103

Introduction to Psychological Design and Statistics

Session 2, Online-scheduled-weekday 2023

School of Mathematical and Physical Sciences

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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.

General Information

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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 most assessments and practical classes. See how to download Stata for free in the Delivery and Resources section, below, and in the [Required Resources](#) area of the Unit Information block in iLearn.

Requirements to pass this unit:

To pass this unit you must:

- Achieve a total mark equal to or greater than 50%, and
- Participate in, and undertake all the Practice-based activities for a minimum of 10 of the 12 weekly Practical exercises

Assessment: Practice-based skills for Practical classes (0%)

During Practical exercises, completed in Practical classes, you will practice using Stata and applying knowledge gained in lectures and tutorials. You must attend the class that you are enrolled into. To pass this hurdle assessment, you must be able to demonstrate your progress in developing and communicating knowledge and skills in at least 10 out of 12 Practical exercises. This is a **hurdle assessment** meaning that failure to meet this requirement may result in a **fail** grade for the unit.

Assessment: Online quizzes (20%)

The online quizzes test your conceptual understanding and practical application of skills learned during lectures, tutorial and practical classes. More information will be available on iLearn.

Assessment: Research Report Part 1 and 2 (40%)

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 Word or as a PDF of the Word file.
- Please note the quick guide on how to upload your assignments provided on the iLearn page.
- If there are technical obstructions to your submitting online, please email us to let us know well before the deadline.

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.

Late Assessment Submission Penalty:

Unless a Special Consideration request has been submitted and approved, a 5% penalty (of the total possible mark) will be applied each day a written assessment is not submitted, up until the 7th day (including weekends and public holidays). After the 7th day, a grade of '0' will be awarded even if the assessment is submitted. Submission time for all written assessments is set at 11:55 pm. A 1-hour grace period is provided to students who experience a technical concern.

For any late submission of time-sensitive tasks, such as scheduled assessment quizzes/ scheduled tests/ exams, and/or presentations students need to submit an application for [Special Consideration](#).

Assessments where Late Submissions will be accepted:

- Report part 1- YES, Standard Late Penalty applies
- Report part 2- YES, Standard Late Penalty applies
- Online quizzes - NO, timed assessments must be completed by the due date unless Special Consideration is granted.

Final Exam Policy:

The final exam for this unit is scheduled to occur on Macquarie University campus. 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. 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.

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.

Special Consideration:

Written Assessments/Quizzes/Tests: If you experience circumstances or events that affect your ability to complete the written reports or quizzes in this unit on time, please inform the convenor and submit a Special Consideration request through ask.mq.edu.au

Weekly practice-based tasks for Practical classes: To pass the unit you need to demonstrate ongoing development of skills and application of knowledge in 10 out of 12 of the weekly practical classes and completion of practical exercises. If you miss your scheduled practical class due to a serious, unavoidable and significant disruption, you should attend another class that week. See the [Practical Information](#) section in iLearn for a list of classes. If it is not possible to attend another class in that week, you should request an extension to the practical deadlines by emailing STAT1103@mq.edu.au. Please **do not** apply for special consideration for practical classes or exercises.

Assessment Tasks

Name	Weighting	Hurdle	Due
Online quizzes	20%	No	Week 3,8
Practice Based Skills for practicals classes	0%	Yes	Weekly
Research Report part 1	15%	No	Week 6
Research Report part 2	25%	No	Week 10
Final Examination	40%	No	University examination period

Online quizzes

Assessment Type ¹: Quiz/Test

Indicative Time on Task ²: 5 hours

Due: **Week 3,8**

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.

Practice Based Skills for practicals classes

Assessment Type ¹: Practice-based task

Indicative Time on Task ²: 12 hours

Due: **Weekly**

Weighting: **0%**

This is a hurdle assessment task (see [assessment policy](#) for more information on hurdle assessment tasks)

In these Practicals, students will practice a range of statistical & research design techniques. To pass this hurdle assessment, students must be able to demonstrate their progress in developing and communicating knowledge and skills by completing practical exercises.

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.

Research Report part 1

Assessment Type ¹: Report

Indicative Time on Task ²: 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 ¹: Report

Indicative Time on Task ²: 20 hours

Due: **Week 10**

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.

Final Examination

Assessment Type ¹: Examination

Indicative Time on Task ²: 5 hours

Due: **University examination 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.

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

Classes:

Lectures (beginning in Week 1): Each week, there are approximately 2 hours of pre-recorded lecture videos to watch, made available on the iLearn site. The pre-recorded lectures will be available the weekend before the week commences. Lectures must be watched prior to attending the tutorial and practical classes that same week. There is also a one-hour live online Q&A session every week occurring Mondays 1-2pm where students can ask questions about the lecture material. These Q&A sessions will be held via Echo360 live stream. Access these sessions via the iLearn site by clicking on the Echo block.

Tutorial classes (beginning in Week 1): Students must register via eStudent and attend one 1-hour tutorial class per week. These classes are on campus for the "in person" unit offering and online via zoom for the "online" offering. Tutorial classes run from Week 1 to Week 12.

Practical classes (beginning in Week 1): Students must register via eStudent and attend one 1-hour practical class per week. These classes are on campus for the "in person" unit offering and online via zoom for the "online" offering. Tutorial classes run from Week 1 to Week 12.

The timetable for classes can be found on the University website at: <https://timetables.mq.edu.au/>

Enrolment can be managed using eStudent at: <https://students.mq.edu.au/support/technology/systems/estudent>

Resources:

Please see the [Required Resources](#) section of iLearn for details of recommended and required texts and other resources. Textbooks can change from one year to another so do not purchase without checking iLearn.

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>).

Communication: We will communicate with you via announcements on iLearn and your university email. Queries to convenors can either be placed on the iLearn discussion board or sent to STAT1103@mq.edu.au from your university email address.

COVID Information: For the latest information on the University's response to COVID-19, please refer to the Coronavirus infection page on the Macquarie website: <https://www.mq.edu.au/about/coronavirus-faqs>. Remember to check this page regularly in case the information and requirements change during semester. If there are any changes to this unit in relation to COVID, these will be communicated via iLearn.

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	Report part 2
11	Best practice in Psychological Science	
12	Putting it all together	
13	Conclusions	
	<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](#)
- [Assessment Procedure](#)
- [Complaints Resolution Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#)

Students seeking more policy resources can visit [Student Policies \(https://students.mq.edu.au/support/study/policies\)](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 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](#).

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 Advocacy](#) provides independent advice on MQ policies, procedures, and processes

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.

Changes from Previous Offering

Every semester feedback results in adjustment to content and/or delivery in this unit. As such we encourage students to provide constructive feedback via student surveys, to teaching staff directly or via the FSE Student Experience and Feedback link in the iLearn page.