



STAX1103

Introduction to Psychological Design and Statistics

Session 1, Online-scheduled-weekday 2022

School of Mathematical and Physical Sciences

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General Information

Unit convenor and teaching staff

Convenor

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School of Mathematical and Physical Sciences

See iLearn for consultation hours.

Convenor

Alissa Beath

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School of Psychological Sciences

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.

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

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

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).
- 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 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 as specified in iLearn. In the case of a late submission for a non-timed assessment (e.g. an assignment), if special consideration has NOT been granted, a 12-hour grace period will be given (including on weekends and/or public holidays) after which the following deductions will be applied to the awarded assessment mark: 12 to 24 hours late = 10% deduction; for each day thereafter, an additional 10% per day or part thereof will be applied until five days beyond the due date. After this time, a mark of zero (0) will be given. Timed assessment tasks (e.g. online quizzes, examinations) do not fall under these rules.

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.

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 |
|--|-----------|--------|------------------------|
| Online quizzes | 20% | No | Week 3, 8, 13 |
| Research Report part 1 | 15% | No | Week 6 |
| Research Report part 2 | 25% | No | Week 11 |
| Final Examination | 40% | No | University exam period |

Online quizzes

Assessment Type ¹: Quiz/Test

Indicative Time on Task ²: 10 hours

Due: **Week 3, 8, 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.
- Summarise data, both numerically and graphically, including using statistical software.
- Conduct statistical tests appropriately, including using statistical software, and draw appropriate conclusions.
- 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 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.
- Summarise data, both numerically and graphically, including using statistical software.
- Conduct statistical tests appropriately, including using statistical software, and draw appropriate conclusions.
- 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 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.
- Summarise data, both numerically and graphically, including using statistical software.
- Conduct statistical tests appropriately, including using statistical software, and draw appropriate conclusions.
- 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

Delivery:

Lectures will be delivered online via the iLearn site. Tutorial activities are facilitated via the iLearn site and are to be completed weekly, beginning in Week 2. Practicals are to be completed weekly beginning in Week 2. Zoom practical classes are available and weekly attendance is strongly encouraged.

Resources:

Please see iLearn for details of required and recommended 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>).

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 |

| Week | Topic | Assessments |
|------|--|---------------|
| 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](#)
- [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](#)

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

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.

Changes from Previous Offering

The text books have changed.

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>