UNSW Course Outline

# PSYC5003 Data Analysis and Methods of Psychological Inquiry - 2024

Published on the 18 Jun 2024

## General Course Information

**Course Code :** PSYC5003
**Year :** 2024
**Term :** Hexamester 4
**Teaching Period :** KN
**Is a multi-term course? :** No
**Faculty :** Faculty of Science
**Academic Unit :** School of Psychology
**Delivery Mode :** Online
**Delivery Format :** Standard
**Delivery Location :** Distance Education
**Campus :** Sydney
**Study Level :** Postgraduate
**Units of Credit :** 6

**Useful Links**

Handbook Class Timetable

## Course Details & Outcomes

### Course Description

This course provides students with knowledge about the characteristics of science, scientific

method, experimental design and data analysis in behavioural sciences. It provides a comprehensive foundation in critical thinking, enabling students to design and execute experiments, analyse and interpret the results, scrutinise and critically evaluate published research and discriminate between evidence-based information and pseudoscience. The course progresses from a discussion of different methodological approaches and data collection techniques to descriptive statistics, foundations of hypothesis testing and the introduction of specific statistical tests. This course is appropriate for students with and without a background in science. The course content will be delivered via asynchronous (pre-recorded) lectures, synchronous tutorials, readings and self-paced modules and quizzes.

## Course Aims

The aim of this course is to provide students with the tools necessary to develop systematic, critical and analytical scientific thinking skills and to understand the research methods and basics of statistical data analysis in psychology. The course activities will teach students how to design research studies, perform basic statistical analysis procedures, draw defensible conclusions and assess the validity of conclusions based on statistical analysis of experimental data. The knowledge provided in this course is a fundamental knowledge required for the advanced courses in the program, as well as further studies in psychology including the honours, masters and PhD degrees.

## Relationship to Other Courses

Students need to have completed PSYC5001 and PSYC5002 in order to enrol in PSYC5003. The course sets the foundations for the advanced statistics and research methods course (PSYC5004).

## Course Learning Outcomes

| Course Learning Outcomes |
| --- |
| CLO1 : Describe the evidence-based research, major concepts, historical trends in statistics and research methods used in behavioural sciences. |
| CLO2 : Apply knowledge about research methods and statistics to critically evaluate results of evidence-based research. |
| CLO3 : Scrutinise non-experimental based information using scientific methods and critical thinking. |
| CLO4 : Recognise and evaluate experimental ethics in behavioural sciences in the context of experimental research. |
| CLO5 : Communicate and discuss the outcomes of experimental research and data analysis. |
| CLO6 : Apply principles of empirical research in behavioural science to formulate testable hypotheses and design experiments. |

| Course Learning Outcomes | Assessment Item |
|---|---|
| CLO1 : Describe the evidence-based research, major concepts, historical trends in statistics and research methods used in behavioural sciences. | • Weekly Quizzes |
| CLO2 : Apply knowledge about research methods and statistics to critically evaluate results of evidence-based research. | • Research Study Critique<br>• Research Study Design |
| CLO3 : Scrutinise non-experimental based information using scientific methods and critical thinking. | • Weekly Quizzes |
| CLO4 : Recognise and evaluate experimental ethics in behavioural sciences in the context of experimental research. | • Research Study Critique<br>• Research Study Design |
| CLO5 : Communicate and discuss the outcomes of experimental research and data analysis. | • Research Study Critique<br>• Research Study Design |
| CLO6 : Apply principles of empirical research in behavioural science to formulate testable hypotheses and design experiments. | • Research Study Design |

## Learning and Teaching Technologies

Moodle - Learning Management System

## Learning and Teaching in this course

Moodle contains lectures, tutorials, content topic materials, assessment materials, and any updated information. You are expected to check Moodle regularly. You are also expected to check your UNSW email regularly. All news updates and announcements will be made on the 'Announcements' forum on the Moodle page and/or by email. You must check Moodle and your student emails regularly to keep up to date.

Given that the course content and all assessable components are delivered online, you must ensure that you have access to a computer with a stable internet connection and a browser capable of handling the features of the Moodle eLearning website and any of its content. No special consideration will be granted due to internet connection or computer issues arising from personal technical issues. If an internet disconnection takes place during an assessment/exam, there will be no way of changing a mark, and these will be allocated according to the progress that was saved. To help you establish whether your computer/internet access is suitable for the online exam/s, a test quiz is available. This quiz will not contribute to final marks and can be completed multiple times to test computer/internet connection prior to assessments/exams.

NOTE: THIS COURSE REQUIRES SIGNIFICANT WEEKLY ASSESSABLE ENGAGEMENT THROUGH MOODLE. You are expected to engage with all materials delivered each week. There will be a combination of formative and summative assessments throughout the course. The expected level of engagement is approximately 20 hours per week (in the 6-week term). Average engagement levels are as follows (a) 2-2.5 hours of engagement with the lecture content (5-6 lectures per week); (b) Tutorial attendance, 3 hours per week including preparation for the tutorial discussion. Note we recommend that you complete the synchronous tutorial, however completion of the recorded asynchronous tutorial will also be accepted; (c) 4.5 hours to complete the assigned activities, including revision modules; (d) 4.5 hours to complete the assigned weekly readings that accompany the content for each lecture topic; (e) 4-5 hours to complete the weekly assessments (secured quizzes) and prepare for the major assessments.

***Under no circumstances will employment be accepted as an excuse not to meet expectations for class participation or assessments.*** Remember, the term times are very short, so it is your responsibility to ensure that you do not fall behind with the ongoing assessment demands of the course.

**Tutorial Attendance**: Attendance and participation in tutorials is compulsory. All tutorials will be delivered in an online mode, through Blackboard Collaborate. Given that this is a fully online course, it is understood that some students may be unavailable at the designated live tutorial time. Therefore, you will be required to participate in the tutorial either synchronously (as the tutorial is streamed live) or asynchronously (a recorded version of the tutorial). NB: Engagement with online tutorials and timely completion of asynchronous online tutorials is essential in accordance with UNSW Assessment Implementation Procedure. You are expected to be aware of the UNSW Assessment policy and understand how to apply for special consideration within the Graduate Diploma Special consideration policies and procedures if you cannot complete an assignment/exam due to illness and/or misadventure. It is expected that students have read through the Graduate Diploma in Psychology (5331) Guide.

# Additional Course Information

### Learning and teaching activities

This is a fully online course, all materials, lectures and tutorials are delivered through Moodle.

The course web page is available through Moodle: https://moodle.telt.unsw.edu.au/login/index. Login with your student number and password, and follow the links to the PSYC page.

The course will be delivered over six weeks, covering six major topic areas. The major topics will be delivered in Weeks 1 to 6, with a new topic presented each week. Students are expected to engage with all materials delivered each week. There will be a combination of formative and summative assessments throughout the course. The expected level of engagement is approximately 20 hours per week, including preparation for the weekly quizzes and written assessments.

Each week students can expect the following:

**Lectures** will be digitally recorded. Links to the lecture recordings will be available on the course web page. Lecture slides will be also available on the Moodle course page. This will be broken down into 6 lectures covering the main concepts for each sub-topic of the week.

**Online tutorials** will be held in weeks 1-6. There are six (6), two (2) hour tutorials delivered through Blackboard Collaborate on the Moodle course page each week. All tutorials will be live streamed for synchronous participation and recorded for asynchronous participation, should a student be unable to join the synchronous tutorial at the designated time. Students will be able access the recorded tutorials, including a transcript of tutor and student contributions, for the remainder of the course. Tutorial discussions are based on lecture content and readings. In order to participate in class discussions, you will need to prepare for tutorials by reviewing the available materials.

**Online activities**: Each week there will be a range of online activities, including formative revision quizzes and interactive learning modules. These activities will allow students to explore the topics of the week in greater depth and provide formative assessment for the students and revision opportunities.

**Readings:** There will be assigned readings each week that cover the major topic of the week. Students will need to read scientific journal articles in order to prepare for the online tutorials. In addition, as part of this preparation students are encouraged to post one comment/discussion point on the Study Group Forum and reply to the comment of at least two other students in the course.

**The general discussion forum** connects students in the course to encourage discussion of weekly content, revision, or topics of interest with each other. Regular engagement in the Study Group Forum will help students gain an understanding of the material, critique the contributions of fellow students, and help develop written communication skills.

**The Q and A forum** provides students with an opportunity to question and clarify the concepts and ideas mentioned in the lectures and readings. Students are strongly encouraged to engage with this forum by posting questions or comments, and reading, answering, or replying to other students' posts to enhance understanding of the content, critical thinking, and written communication skills.

**Formative topic revision quizzes** are available for students that provide an opportunity to evaluate understanding of course material on a weekly basis. Timely completion of the weekly quizzes will assist students in gaining a proper understanding of each topic so that this knowledge can be built on.

# Assessments

## Assessment Structure

| Assessment Item | Weight | Relevant Dates |
|---|---|---|
| Weekly Quizzes<br>Assessment Format: Individual | 20% | Start Date: Thursday Week 1-6 at 7am<br>Due Date: Sunday Week 1-6 at 11:59pm |
| Research Study Critique<br>Assessment Format: Individual | 40% | Start Date: Week 1<br>Due Date: Week 3 |
| Research Study Design<br>Assessment Format: Individual | 40% | Start Date: Week 1<br>Due Date: Week 6 |

## Assessment Details

### Weekly Quizzes

**Assessment Overview**

The aim of this assessment is to help you review weekly topics. You will be required to complete 6 quizzes. Quizzes are conducted under timed conditions and are designed to be taken without reference to lecture notes or study resources. These quizzes will cover the content of the lectures and readings. The quizzes will be held in weeks 1-6 and will cover content presented in the week they are released. The weekly quizzes form part of a continuous assessment. The top five grades out of the six quizzes will be used to count towards the final weekly quiz grade which accounts for 20% of the course mark. The purpose of this assessment is to test your level of comprehension regarding the course material. Your marks and solutions will be provided on completing each quiz.

**Course Learning Outcomes**

- CLO1 : Describe the evidence-based research, major concepts, historical trends in statistics

and research methods used in behavioural sciences.
- CLO3 : Scrutinise non-experimental based information using scientific methods and critical thinking.

**Assessment Length**

20 multiple choice questions

**Submission notes**

Moodle quiz

**Assessment information**

Not applicable

**Assignment submission Turnitin type**

Not Applicable

## Research Study Critique

**Assessment Overview**

In this assessment you will critically evaluate a study's methodological soundness. Through open ended questions, you will be asked to identify a number of research method concepts including: the research question and hypotheses, experimental design, independent and dependent variables, confounding variables, sample sizes and characteristics, and ethical issues in research.

Your assignment should be approximately 750 words. The assessment information will be available on the first day of the course. The assessment is due in Week 3. You will receive feedback through a series of in-text comments related to each question. You will prepare for this assessment by completing a research study critique formative task.

**Course Learning Outcomes**

- CLO2 : Apply knowledge about research methods and statistics to critically evaluate results of evidence-based research.
- CLO4 : Recognise and evaluate experimental ethics in behavioural sciences in the context of experimental research.
- CLO5 : Communicate and discuss the outcomes of experimental research and data analysis.

**Assessment Length**

Approximately 750 words

**Submission notes**

Text file

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students do not see Turnitin similarity reports.

## Research Study Design

Assessment Overview

In this assessment, you will formulate testable hypotheses, design a research study to test the hypotheses, and to write a research proposal. You will be required to write a 1500-word research proposal outlining a proposed research design to investigate a research question and test a hypothesis (or hypotheses). This will include a detailed outline of an appropriate experimental design and a description of how to collect data. You will be required to provide a justification for your chosen research study design and to write a brief discussion about the expected results. The assessment information will be available on the first day of the course. You will prepare for this assessment by participating in the tutorial activities and revising the lecture materials and assigned readings. The assessment is due in Week 6. You will receive feedback through annotated rubric and a series of in-text comments.

Course Learning Outcomes

- CLO2 : Apply knowledge about research methods and statistics to critically evaluate results of evidence-based research.
- CLO4 : Recognise and evaluate experimental ethics in behavioural sciences in the context of experimental research.
- CLO5 : Communicate and discuss the outcomes of experimental research and data analysis.
- CLO6 : Apply principles of empirical research in behavioural science to formulate testable hypotheses and design experiments.

Assessment Length

1500 words

Submission notes

Text file

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students do not see Turnitin similarity reports.

# General Assessment Information

Not applicable

Grading Basis

Standard

Requirements to pass course

Not applicable

# Course Schedule

| Teaching Week/Module | Activity Type | Content |
|---|---|---|
| Week 1 : 1 July - 7 July | Lecture | Introduction to Science and Statistics |
| | Tutorial | Online tutorial discussion based on lectures and readings. You will discuss the nature of critical thinking, the scientific method and its application in behavioural sciences. In addition, you will define and identify independent and dependent variables in experiments. |
| Week 2 : 8 July - 14 July | Lecture | The Normal Distribution and z-test |
| | Tutorial | Online tutorial discussion based on lectures and readings. You will discuss the concepts of the normal distribution, distribution of sample means and z-test in statistics. |
| Week 3 : 15 July - 21 July | Lecture | The t-distribution and single sample t-test |
| | Tutorial | Online tutorial discussion based on lectures and readings. You will discuss the concept of t-distribution and how to use single sample t-test for data analysis. |
| Week 4 : 22 July - 28 July | Lecture | Dependent means t-test |
| | Tutorial | Online tutorial discussion based on lectures and readings. You will discuss the use of dependent means t-test for data analysis. |
| Week 5 : 29 July - 4 August | Lecture | Independent means t-test |
| | Tutorial | Online tutorial discussion based on lectures and readings. In this module, you will discuss the use of independent means t-test for data analysis. |
| Week 6 : 5 August - 11 August | Lecture | Correlation |
| | Tutorial | Online tutorial exercises based on lectures and readings. You will learn how to interpret and use correlation in statistics. |

## Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

## General Schedule Information

Each week this course typically consists of 2-2.5 hours of lecture material, 2 hours of face to face tutorials, and 4.5 hours of online activities. Students are expected to take an additional 5-6 hours each week of self-determined study to complete assessments, readings, and quiz preparation.

# Course Resources

## Prescribed Resources

Gravetter, F. J., & Forzano, L. A. B. (2019). Research methods for the behavioural sciences (6th ed.). Cengage Learning.

Howell, D. C. (2020). Fundamental statistics for the behavioural sciences (9th ed.). Cengage Learning.

E-book copies of the textbook will be provided to students through Moodle along with MindTap additional resources.

## Recommended Resources

Not applicable

## Additional Costs

Not applicable

## Course Evaluation and Development

In order to gather comprehensive student feedback on the course, we utilise the anonymous myExperience survey as one of the primary methods. This survey provides a structured platform for students to share their thoughts, opinions, and suggestions regarding various aspects of the course. Additionally, students are encouraged to email their feedback directly to the program authorities for further discussion and consideration. The myExperience survey will be administered towards the end of the course to capture students' experiences and perspectives. The survey will cover different dimensions of the course, including teaching quality, course materials, assessments, and overall learning environment. The anonymous nature of the survey ensures that students can express their feedback freely and honestly.

Once the survey responses are collected, they will be analysed. The analysis will involve examining both quantitative and qualitative data to identify common themes, patterns, and areas for improvement. Quantitative data, such as ratings responses, will be aggregated and summarised to gain a quantitative overview of student satisfaction and areas of concern. Qualitative feedback, such as open-ended comments, will be carefully reviewed and categorised to extract valuable insights and specific suggestions.

Based on the findings from the analysis, appropriate actions will be taken to address the

identified areas for improvement. These actions may include revising course materials, adjusting teaching approaches, providing additional support resources, or modifying assessment methods.

Feedback from students is considered a valuable asset in shaping the course. We aim to create a more student-centred learning experience by actively seeking and incorporating student input. The feedback students provide serves as a catalyst for continuous improvement and ensures that the course responds to their needs and expectations.

# Staff Details

| Position | Name | Email | Location | Phone | Availability | Equitable Learning Services Contact | Primary Contact |
|---|---|---|---|---|---|---|---|
| Program director | Lidija Krebs-Lazendic | | | | | No | Yes |
| Administrator | Deliana Freky | | | | | No | No |

# Other Useful Information

## School Contact Information

For GD Psych courses (PSYC5001 - PSYC5010), please email: gdpsychology@unsw.edu.au.

For GCChildDev courses (PSYC5111 - PSYC5116), please email: gcchilddev@unsw.edu.au