



## UNSW Course Outline

# PSYC5005 Behavioural Neuroscience - 2024

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## General Course Information

**Course Code :** PSYC5005

**Year :** 2024

**Term :** Hexamester 6

**Teaching Period :** KV

**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 examines the elementary processes of learning and memory and the neurobiological mechanisms that underpin them. These include: learning about relations between events (Pavlovian conditioning), learning about relations between one's behaviour and events

(Instrumental conditioning), and how these forms of learning control behaviour. There will be an emphasis on the current experimental and theoretical research, including the role of neural systems in supporting behaviour, the role of molecular signaling cascades and neuronal encoding in learning and memory. The course is appropriate for the student with knowledge of advanced statistics and research methods in Psychology. 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 an understanding of the neurobiological mechanisms that explain a range of behaviours. There will be a focus on current research and techniques in this area. Most of the research will focus on non-human animal studies, but the implications of this research for clinical applications will be explored for each topic. This course provides foundational knowledge for further studies and research in behavioural neuroscience.

## **Relationship to Other Courses**

In order to enrol in PSYC5005, completion of the PSYC5001-PSYC5004 sequence is required.

# Course Learning Outcomes

Course Learning Outcomes
CL01 : Identify the major concepts of behavioural neuroscience, with a focus on the principles of associative learning, the neurobiological mechanisms of fear, habits and addiction, and memory and forgetting.
CL02 : Describe and evaluate experimental methodologies used in behavioural neuroscience research with respect to current empirical and theoretical evidence.
CL03 : Construct effective scientific arguments by reviewing and synthesising relevant empirical evidence and theories in neuroscience.
CL04 : Identify the ethical issues involved in animal and human research, including the importance of ethical guidelines in animal research.
CL05 : Design a research experiment and justify its importance by integrating empirical evidence, relevant theories, and knowledge of ethical treatment of animals in research.
CL06 : Assess and explain the implications of theoretical concepts and research findings from the field of behavioural neuroscience on understanding mental health issues such as anxiety, addiction and schizophrenia.

Course Learning Outcomes	Assessment Item
CL01 : Identify the major concepts of behavioural neuroscience, with a focus on the principles of associative learning, the neurobiological mechanisms of fear, habits and addiction, and memory and forgetting.	<ul style="list-style-type: none"> <li>• Weekly Quizzes</li> </ul>
CL02 : Describe and evaluate experimental methodologies used in behavioural neuroscience research with respect to current empirical and theoretical evidence.	<ul style="list-style-type: none"> <li>• Clinical Applications Oral Presentation</li> <li>• Research Proposal</li> </ul>
CL03 : Construct effective scientific arguments by reviewing and synthesising relevant empirical evidence and theories in neuroscience.	<ul style="list-style-type: none"> <li>• Clinical Applications Oral Presentation</li> <li>• Research Proposal</li> </ul>
CL04 : Identify the ethical issues involved in animal and human research, including the importance of ethical guidelines in animal research.	<ul style="list-style-type: none"> <li>• Weekly Quizzes</li> <li>• Research Proposal</li> </ul>
CL05 : Design a research experiment and justify its importance by integrating empirical evidence, relevant theories, and knowledge of ethical treatment of animals in research.	<ul style="list-style-type: none"> <li>• Research Proposal</li> </ul>
CL06 : Assess and explain the implications of theoretical concepts and research findings from the field of behavioural neuroscience on understanding mental health issues such as anxiety, addiction and schizophrenia.	<ul style="list-style-type: none"> <li>• Clinical Applications Oral Presentation</li> <li>• Research Proposal</li> </ul>

# 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 Assessment Format: Individual	20%	Start Date: Thursday Week 1-6 at 7am Due Date: Sunday Week 1-6 at 11:59pm
Clinical Applications Oral Presentation Assessment Format: Individual	30%	Start Date: Week 1 Due Date: Week 3
Research Proposal Assessment Format: Individual	50%	Start Date: Week 1 Due Date: Week 6

## Assessment Details

### Weekly Quizzes

#### Assessment Overview

You will be required to complete 6 quizzes under official exam conditions. 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

- CL01 : Identify the major concepts of behavioural neuroscience, with a focus on the principles of associative learning, the neurobiological mechanisms of fear, habits and addiction, and memory and forgetting.
- CL04 : Identify the ethical issues involved in animal and human research, including the importance of ethical guidelines in animal research.

#### Assessment Length

20 multiple choice questions

#### Submission notes

Moodle quiz

#### Assessment information

Not applicable

### Assignment submission Turnitin type

Not Applicable

### Generative AI Permission Level

No Assistance

This assessment is designed for you to complete without the use of any generative AI. You are not permitted to use any generative AI tools, software or service to search for or generate information or answers.

For more information on Generative AI and permitted use please see [here](#).

## **Clinical Applications Oral Presentation**

### Assessment Overview

The purpose of this assessment is to allow you to explore the applied context of animal research and to present evidence from scientific research orally to a lay audience.

You can choose any area of research discussed in the course to discuss the clinical applications of this research. You will identify one type of animal research and discuss the basic theories which explain the phenomena. You will also provide an example of how this research has been translated to clinical applications.

This will allow you to explore the applied context of animal research in the clinical context. You will record and submit a 10-minute video presentation that will be shared with your class. 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 annotated rubric and a series of in-text comments. You will prepare for this assessment by participating in tutorial activities and reviewing the assigned readings.

### Course Learning Outcomes

- CLO2 : Describe and evaluate experimental methodologies used in behavioural neuroscience research with respect to current empirical and theoretical evidence.
- CLO3 : Construct effective scientific arguments by reviewing and synthesising relevant empirical evidence and theories in neuroscience.
- CLO6 : Assess and explain the implications of theoretical concepts and research findings from the field of behavioural neuroscience on understanding mental health issues such as anxiety, addiction and schizophrenia.

### Assessment Length

10 minutes



### Submission notes

Video file

### Assessment information

Not applicable

### Assignment submission Turnitin type

Not Applicable

### Generative AI Permission Level

#### **Assistance with Attribution**

This assessment requires you to write/create a first iteration of your submission yourself. You are then permitted to use generative AI tools, software or services to improve your submission in the ways set out below.

Any output of generative AI tools, software or services that is used within your assessment must be attributed with full referencing.

If outputs of generative AI tools, software or services form part of your submission and are not appropriately attributed, your Convenor will determine whether the omission is significant. If so, you may be asked to explain your submission. If you are unable to satisfactorily demonstrate your understanding of your submission you may be referred to UNSW Conduct & Integrity Office for investigation for academic misconduct and possible penalties.

For more information on Generative AI and permitted use please see [here](#).

You may use AI in the following ways for this assessment:

- Planning - suggestions for ideas and structure
- Literature review - you may use AI to help you conduct a literature search and suggest papers.
- Editing - You may use AI tools for simple editing such as spell check and grammar and video editing.

You may NOT use AI to produce your voice-over for the presentation. You will be marked on your presentation style, including eye contact with the camera, pitch, tone and speed of voice and level of engagement with the audience. Any use of AI will not reflect your natural voice and will be detrimental to your overall mark. You must acknowledge the use of AI if you choose to use it for this assessment.

Your presentation must be your own work; that is, you must sufficiently edit anything planned or produced by AI to the extent that it is clearly your own independent work. You must acknowledge

any use of AI in this assessment. If your course convenor suspects your assessment does not reflect your own independent work, you may be asked to show a history of your prompts and output from your chosen AI source. You should keep a record of your process with AI if you choose to use one of these tools.

## **Research Proposal**

### **Assessment Overview**

The purpose of this assignment is to provide you with the opportunity to research and design an experiment in the area of behavioural neuroscience and associative learning.

You will be required to research one of the areas of behavioural neuroscience and to write a 1500-2000 word research proposal for an experiment. The proposal will contain a literature review of the current research, a critique of the present research and a rationale for the proposed experiment. The final section will require you to propose one experiment, including relevant methodological information and expected results. The proposed experiment must logically follow from the literature review and contain a novel contribution to the research area taking into consideration ethical treatment of animals in research. The assessment information will be available on the first day of the course. The assessment is due in Week 6. You will receive feedback through annotated rubric and a series of in-text comments. You will prepare for this assessment by participating in tutorial activities and studying the course materials.

### **Course Learning Outcomes**

- CL02 : Describe and evaluate experimental methodologies used in behavioural neuroscience research with respect to current empirical and theoretical evidence.
- CL03 : Construct effective scientific arguments by reviewing and synthesising relevant empirical evidence and theories in neuroscience.
- CL04 : Identify the ethical issues involved in animal and human research, including the importance of ethical guidelines in animal research.
- CL05 : Design a research experiment and justify its importance by integrating empirical evidence, relevant theories, and knowledge of ethical treatment of animals in research.
- CL06 : Assess and explain the implications of theoretical concepts and research findings from the field of behavioural neuroscience on understanding mental health issues such as anxiety, addiction and schizophrenia.

### **Assessment Length**

1500-2000 words

### Submission notes

Text file

### Assessment information

Not applicable

### Assignment submission Turnitin type

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

### Generative AI Permission Level

#### **Assistance with Attribution**

This assessment requires you to write/create a first iteration of your submission yourself. You are then permitted to use generative AI tools, software or services to improve your submission in the ways set out below.

Any output of generative AI tools, software or services that is used within your assessment must be attributed with full referencing.

If outputs of generative AI tools, software or services form part of your submission and are not appropriately attributed, your Convenor will determine whether the omission is significant. If so, you may be asked to explain your submission. If you are unable to satisfactorily demonstrate your understanding of your submission you may be referred to UNSW Conduct & Integrity Office for investigation for academic misconduct and possible penalties.

For more information on Generative AI and permitted use please see [here](#).

You are permitted to use generative AI tools, software or services to assist you with your literature search, generate outlines and suggest structures for your assessment. You must write a first draft of your assessment yourself in your own words. You are then permitted to use generative AI tools to assist you in editing and refining your final submission. You should keep in mind that ideas and output produced by generative AI are often superficial, it is your responsibility to verify the accuracy of the output. You must sufficiently develop or edit any content created by generative AI to the extent that what is submitted is your own work.

Should you choose to use generative AI, you will need to:

- Keep copies of your prompts and output from generative AI.
- Keep a version history of your assessment.

If outputs of generative AI, such as ChatGPT, form any more than an occasional part of your submission, it will be regarded as serious academic misconduct.

# General Assessment Information

Not applicable

## Grading Basis

Standard

## Requirements to pass course

Not applicable

# Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 21 October - 27 October	Lecture	Historical Perspectives and Introduction to Associative Learning Lecture 1 -3: Historical perspectives Lecture 4: Introduction to associative learning Lecture 5: Contingency Lecture 6: Problems for contingency: Blocking
	Tutorial	Online tutorial discussion based on lectures and readings. You will discuss the historical perspectives of animal learning and the basics of associative learning.
Week 2 : 28 October - 3 November	Lecture	Human Associative Learning and Attention Lecture 1: The Rescorla-Wagner model Lectures 2 and 3: Evaluative conditioning Lectures 4 and 5: Attention and learning Lecture 6: Schizophrenia and aberrant salience
	Tutorial	Online tutorial discussion based on lectures and readings. You will discuss the major concepts of associative learning, evaluative conditioning and the clinical implications of attention and learning.
Week 3 : 4 November - 10 November	Lecture	Neurobiological Mechanisms of Pavlovian Fear Conditioning and Extinction Lectures 1 and 2: Neural processes of fear learning Lectures 3 and 4: Neural processes of fear expression Lectures 5 and 6: Neural processes of extinction
	Tutorial	Online tutorial discussion based on lectures and readings. You will discuss the neural structures involved in normal and maladaptive fear. There will be a focus on the neurobiological processes that underpin fear learning and expression. You will discuss the behavioural evidence for extinction, and the learning models which explain this process.
Week 4 : 11 November - 17 November	Lecture	Neurobiological Mechanisms of Habits and instrumental Conditioning Lectures 1 and 2: Neural processes of instrumental learning Lectures 3 and 4: Neural processes of habit Lectures 5 and 6: Neural processes of habit formation
	Tutorial	Online tutorial discussion based on lectures and readings. You will discuss the neural structures involved in instrumental conditioning and the habit circuit.
Week 5 : 18 November - 24 November	Lecture	Neurobiological Mechanisms of Feeding and Body Regulation Lecture 1: Introduction to feeding Lectures 2 and 3: Why we eat what we eat Lecture 4: How does our body regulate weight
	Tutorial	Online tutorial discussion based on lectures and readings. You will discuss the neurobiological mechanism of feeding and body regulation and explore the neural structures and circuits involved in these processes.
Week 6 : 25 November - 1 December	Lecture	Neurobiological mechanisms of memory and forgetting Lectures 1 and 2: Neural process of memory consolidation Lectures 3 and 4: Neural Processes of reconsolidation Lectures 5 and 6: Neural Processes of forgetting – amnesia
	Tutorial	Online tutorial discussion based on lectures and readings. You will discuss the neural processes that underpin normal memory, including the consolidation and reconsolidation of memories. There will be a focus on the molecular and cellular mechanisms involved in these processes.

## 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 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 exam preparation.

## Course Resources

### Prescribed Resources

Kalat, J. W. (2020). Biological psychology (13th 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

Please email [psychonline@unsw.edu.au](mailto:psychonline@unsw.edu.au) for any enquiry related to the following programs & its courses:

- Graduate Diploma in Psychology (5331); courses: PSYC5001 - PSYC5010
- Graduate Diploma in Advanced Psychology (5332); courses: PSYC5201 - PSYC5213
- Graduate Certificate in Child Development (7419); courses: PSYC5111 - PSYC5116