



## UNSW Course Outline

# NEUR3221 Neurophysiology - 2024

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## General Course Information

**Course Code :** NEUR3221

**Year :** 2024

**Term :** Term 3

**Teaching Period :** T3

**Is a multi-term course? :** No

**Faculty :** Faculty of Medicine and Health

**Academic Unit :** School of Biomedical Sciences

**Delivery Mode :** In Person

**Delivery Format :** Standard

**Delivery Location :** Kensington

**Campus :** Sydney

**Study Level :** Undergraduate

**Units of Credit :** 6

### Useful Links

[Handbook Class Timetable](#)

## Course Details & Outcomes

### Course Description

The course examines brain function from a cellular and synaptic level, through to system and functional levels. Content includes cellular and synaptic neuroscience, and builds to investigate different aspects of sensory systems, and higher order brain processing and brain dysfunction. Content is delivered by discipline experts, drawn from diverse research areas, with teaching

activities encompassing lectures, tutorials, and practical classes.

## Course Aims

The objective of this course is to gain an understanding of the principles of neurophysiology by:

- using molecular, synaptic and cellular processes to explain brain function
- grasping the relationship between experimental techniques and the data they produce

## Relationship to Other Courses

This course complements Molecular and Cellular Neuroscience (NEUR3121) which focuses on the structure and function of individual neurons and their ion channels and receptors. Students also find that this course complements Muscle and Motor Control (NEUR3101), Neuroanatomy (ANAT3411), and Neuropharmacology (PHAR3202).

### Assistance with progression checking:

If you are unsure how this course fits within your program, you can seek guidance on optimising your program structure, from staff at the [Nucleus Student Hub](#).

- Progression plans for UNSW Medicine and Health programs can be found on the [UNSW Medicine & Health website](#).
- Progression plans for UNSW Science programs can be found on the [UNSW Science website](#).

# Course Learning Outcomes

Course Learning Outcomes
CLO1 : Describe fundamental principles of neurophysiology to answer questions related to neural mechanisms underlying physiological processes.
CLO2 : Critically analyse and interpret data related to the nervous system function.
CLO3 : Design and execute a neurophysiological experiment.
CLO4 : Describe the relationship between the experimental techniques that provide neurophysiological data, and the constraints on interpretation that the techniques impose.

Course Learning Outcomes	Assessment Item
CLO1 : Describe fundamental principles of neurophysiology to answer questions related to neural mechanisms underlying physiological processes.	<ul style="list-style-type: none"><li>• End of Course Assessment</li><li>• Progress quizzes</li></ul>
CLO2 : Critically analyse and interpret data related to the nervous system function.	<ul style="list-style-type: none"><li>• Integrated Practical Assessment</li><li>• End of Course Assessment</li><li>• Progress quizzes</li></ul>
CLO3 : Design and execute a neurophysiological experiment.	<ul style="list-style-type: none"><li>• Integrated Practical Assessment</li></ul>
CLO4 : Describe the relationship between the experimental techniques that provide neurophysiological data, and the constraints on interpretation that the techniques impose.	<ul style="list-style-type: none"><li>• End of Course Assessment</li><li>• Integrated Practical Assessment</li></ul>

## Learning and Teaching Technologies

Moodle - Learning Management System | Microsoft Teams | Echo 360 | Microsoft Onenote

## Learning and Teaching in this course

All course materials and course announcements are provided on the course learning management system, Moodle (or Open Access).

By accessing and using the ICT resources provided by UNSW, you are agreeing to abide by the ['Acceptable Use of UNSW ICT Resources'](#) policy particularly on respect for intellectual property and copyright, legal and ethical use of ICT resources and security and privacy.

# Assessments

## Assessment Structure

Assessment Item	Weight	Relevant Dates
End of Course Assessment Assessment Format: Individual	35%	Start Date: During Exam Period Due Date: During Exam Period
Progress quizzes Assessment Format: Individual	40%	Start Date: weekly during tutorial. Due Date: weekly during tutorial.
Integrated Practical Assessment Assessment Format: Group	25%	Start Date: various (see detailed description) Due Date: various (see detailed description)

## Assessment Details

### End of Course Assessment

#### Assessment Overview

The end of course final exam will be comprised of short answer and multiple-choice questions and may include some simple calculations. Exam questions will be based on the material covered in the lectures, tutorials, and practicals. The exam is comprehensive; material covered in the progress quizzes may be again examined in the final exam. Exam results will be provided following the official release of course marks.

#### Course Learning Outcomes

- CL01 : Describe fundamental principles of neurophysiology to answer questions related to neural mechanisms underlying physiological processes.
- CL02 : Critically analyse and interpret data related to the nervous system function.
- CL04 : Describe the relationship between the experimental techniques that provide neurophysiological data, and the constraints on interpretation that the techniques impose.

#### Detailed Assessment Description

Detailed information about this assessment will be provided on the course Moodle page

#### Assessment Length

2 hours

#### Submission notes

Refer to Moodle for submission information.

#### 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](#).

### **Progress quizzes**

#### **Assessment Overview**

Progress quizzes will be comprised of short answer questions, multiple choice and/or short calculations. The recurring progress quizzes assess your understanding of the concepts presented throughout the course and help you keep up to date on the content. Feedback is provided at the end of each quiz, providing an indication of your comprehension of the course content.

#### **Course Learning Outcomes**

- CL01 : Describe fundamental principles of neurophysiology to answer questions related to neural mechanisms underlying physiological processes.
- CL02 : Critically analyse and interpret data related to the nervous system function.

#### **Detailed Assessment Description**

This is a continuous assessment quiz which will be assessed during the tutorial each week. The quiz will assess lecture, tuotrial, and practical content. It is a timed quiz, and the marks will be released the day after submission. The grade for each student will be determined from their best 6 marks.

Please ensure you arrive to your tutorial on time and your laptop is fully charged. Specific details will be given via Moodle.

#### **Assessment Length**

10-15 minutes per quiz

#### **Assignment submission Turnitin type**

This is not a Turnitin assignment

## **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](#).

## **Integrated Practical Assessment**

### **Assessment Overview**

The aim of the integrated practical assessment is to develop your capacity to design and execute an experiment, document findings, analyse data accurately, and draw valid conclusions based on the data. Prior to undertaking the experiment, your group will prepare a proposal describing the research question and experimental design. Multiple practical classes are dedicated to the student designed practical and you will be provided with progressive feedback and support throughout the research task. Written feedback and marks will be provided following completion of the proposal, report, and lab notebook.

### **Course Learning Outcomes**

- CLO2 : Critically analyse and interpret data related to the nervous system function.
- CLO3 : Design and execute a neurophysiological experiment.
- CLO4 : Describe the relationship between the experimental techniques that provide neurophysiological data, and the constraints on interpretation that the techniques impose.

### **Detailed Assessment Description**

The proposal will be worth 25%. Groups will pitch their proposal during the week 7 practical session (25 October). Experiments will be undertaken during week 8. The week 9 practical session will focus on data interpretation and presentation. Students are expected to maintain a comprehensive record of their experiment in their electronic lab notebook. Lab notebooks (25%) are due 5 pm on 14 November. The group report presentation (40%) will be 15 November (during the week 10 practical session). Students will also submit an individual reflection and peer reviews of the other group members (10%) that is due 5 pm on Friday 15 November. Detailed briefs for each assessment component are available on Moodle.

### **Submission notes**

Refer to Moodle for submission information.

### **Assignment submission Turnitin type**

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

## Generative AI Permission Level

### **Planning/Design Assistance**

You are permitted to use generative AI tools, software or services to generate initial ideas, structures, or outlines. However, you must develop or edit those ideas to such a significant extent that what is submitted is your own work, i.e., what is generated by the tool, software or service should not be a part of your final submission. You should keep copies of your iterations to show your Course Authority if there is any uncertainty about the originality of your work.

If your Convenor has concerns that your answer contains passages of AI-generated text or media that have not been sufficiently modified you may be asked to explain your work, but we recognise that you are permitted to use AI generated text and media as a starting point and some traces may remain. 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](#).

In this assessment, AI tools may be utilized for locating relevant papers, brainstorming experimental ideas, and explaining how presentations are structured. However, AI cannot be used in the presentations, or the analysis and interpretation of your results.

## **General Assessment Information**

Detailed instructions regarding assessments for this course are provided on the course Moodle page (or Open Learning).

For student information on results, grades, and guides to assessment see: <https://student.unsw.edu.au/assessment>

### Grading Basis

Standard

### Requirements to pass course

In order to pass this course students must:

- Achieve a composite grade of at least 50 out of 100
- Meet any additional requirements specified in the assessment details section and on Moodle.

# Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 9 September - 15 September	Lecture	Basics Principles of Neurophysiology (2 hours) [Power]
	Tutorial	Role of glia in nervous system function and dysfunction [Moalem-Taylor].
	Laboratory	Introduction to Neurophysiology Practicals.
Week 2 : 16 September - 22 September	Lecture	Autonomic Nervous Systems [Power] Homeostasis [Power]
	Tutorial	EEG and the Physiology of Sleep []
	Laboratory	Using EEG and machine learning to classify sleep wake states [von Wegner]
Week 3 : 23 September - 29 September	Lecture	Tactile system [Birzniece] Proprioception [Birzniece]
	Tutorial	Neural Coding and Sensorimotor Control [Birzniece]
	Laboratory	Cockroach Sensory Nerve Recording
Week 4 : 30 September - 6 October	Lecture	Introduction to Hearing: the Cochlea [Housley] Central Auditory Pathways [Cederholm]
	Tutorial	Auditory tutorial [Cederholm/Housley]
	Laboratory	Sound Localisation
Week 5 : 7 October - 13 October	Lecture	Pain (2 hours) [Moalem-Taylor]
	Tutorial	Public Holiday
	Laboratory	NeuVLab & DIY planning
Week 7 : 21 October - 27 October	Lecture	Peripheral Neuropathy [Lees] Neurophysiological Tools and Experimental Design [Power]
	Tutorial	Pain Tutorial [Moalem-Taylor]
	Laboratory	Design It Yourself (DIY) Practical - pitch
Week 8 : 28 October - 3 November	Lecture	Memory systems [Power] Experience Dependent Plasticity [Power]
	Tutorial	Memory Mechanisms [Power]
	Laboratory	Design It Yourself (DIY) Practical - execution
Week 9 : 4 November - 10 November	Lecture	Introduction to the Basal Ganglia [Birzniece] Neurobiology of mental illness [Purves-Tyson]
	Tutorial	Motivated learning and addiction [Power]
	Laboratory	Design It Yourself (DIY) Practical - analysis
Week 10 : 11 November - 17 November	Lecture	Neuroprosthetics [Birzniece] Cochlear Pathophysiology [Housley]
	Tutorial	TBD
	Laboratory	Design It Yourself (DIY) Practical - presentation

## Attendance Requirements

Students are reminded that UNSW recommends that a 6 units-of-credit course should involve about 150 hours of study and learning activities. The formal learning activities total approximately 60 hours throughout the term and students are expected (and strongly recommended) to do at least the same number of hours of additional study.

Students are expected to engage in all scheduled activities (up to 4 hours of lectures / tutorials per week and up to 3 hours of practical sessions per week).

Attendance at practical and tutorial classes is expected. Satisfactory completion of the work set for each class is essential. It should be noted that non-attendance for other than documented



medical or other serious reasons, or unsatisfactory performance, for more than one practical class or one tutorial class per course may result in an additional practical assessment exam or in ineligibility to pass the course.

## General Schedule Information

The times and locations of classes can be found on [myUNSW](#) under Class Timetable.

The expected engagement for all UNSW 6UOC courses is 150 hours per term. This includes lectures, tutorials, readings, and completion of assessments and exam preparation (if relevant).

## Course Resources

### Recommended Resources

Recommended resources for this course are provided on the course Moodle page.

### Additional Costs

There are no additional costs associated with this course.

## Course Evaluation and Development

Student feedback is taken seriously, and continual improvements are made to the course based, in part, on such feedback.

We use student feedback from class representatives during the term and myExperience surveys at the end of term to develop and make improvements to the course each year. We do this by identifying areas of the course that require development from both the rating responses and written comments. Please spare a few minutes to complete the myExperience surveys for this course posted at the top of the Moodle page at the end of term.

### Previous students told us:

- There are too many assessment tasks.
- Having multiple midterm exams in week 5 was a source of stress.
- While live lectures were appreciated, attending them online proved challenging.
- In-person tutorials significantly enhanced their learning experience.

### We have responded to this feedback by:

- To alleviate the assessment load, we've replaced weekly quizzes and the midterm exam with ongoing progress quizzes. These quizzes serve the dual purpose of the previous

assessments by providing timely feedback on your grasp of the course material.

- We've lengthened the in-person tutorials to two hours and reduced the number of lectures.

## Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	John Power		356 Wallace Wurth Building (C27)		by appointment	Yes	Yes
	Gila Moalem-Taylor		355B Wallace Wurth Building (C27)		by appointment	Yes	No

## Other Useful Information

### Academic Information

As a student of UNSW Medicine & Health you are expected to familiarise yourself with the contents of this course outline and the UNSW Student Code and policies and procedures related to your studies.

### Student Code of Conduct

Throughout your time studying at UNSW Medicine & Health, you share a responsibility with us for maintaining a safe, harmonious and tolerant University environment. This includes within the courses you undertake during your degree and your interactions with the UNSW community, both on campus and online.

The [UNSW Student Code of Conduct](#) website provides a framework for the standard of conduct expected of UNSW students with respect to both academic integrity and your responsibility as a UNSW citizen.

Where the University believes a student may have breached the code, the University may take disciplinary action in accordance with the [Student Misconduct Procedure](#).

The [Student Conduct and Integrity Office](#) provides further resources to assist you to understand your conduct obligations as a student at UNSW.

### Academic Honesty and Plagiarism

#### Academic integrity

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW staff and students have a responsibility to adhere to the principle of academic integrity, and ethical scholarship of learning is fundamental to your success at UNSW Medicine & Health.

Plagiarism, contract cheating, and inappropriate use of generative AI undermine academic integrity and are not tolerated at UNSW. For more information see the [Academic Integrity and Plagiarism toolkit](#).

In addition to the information you are required to review in your [ELISE training](#), UNSW Medicine & Health strongly recommends that you complete the [Working with Academic Integrity](#) module before submitting your first assessment task.

## Referencing

Referencing is a way of acknowledging the sources of information that you use to research your assignments. Preferred referencing styles vary among UNSW Medicine & Health disciplines, so check your course Learning Management System (e.g. Moodle or Open Learning) page for information on preferred referencing styles.

For further information on referencing support and styles, see the Current Student [Referencing page](#).

## Academic misconduct and plagiarism

At UNSW, academic misconduct is managed in accordance with the [Student Misconduct Procedure](#). Allegations of plagiarism are generally handled according to the [UNSW Plagiarism Management Procedure](#). Plagiarism is defined in the [UNSW Plagiarism Policy](#) and is not tolerated at UNSW.

## Use of Generative AI and other tools in your assessment

UNSW has provided guiding statements for the [use of Generative AI in assessments](#). This will differ, depending on the individual assessment task, your course requirements, and the course stage within your program.

Your course convenor will outline if and how you can use Generative AI in each of your assessment tasks. Inappropriate use of generative AI is considered academic misconduct.

Options for the use of generative AI include: (1) no assistance (for invigilated assessments); (2) simple editing assistance; (3) drafting assistance; and (4) full assistance with attribution; and (5) Generative AI software-based assessments. See your individual assessment descriptions for the level of permitted use of generative AI for each task and see your course Moodle (or Open Learning) page for the full instructions on permitted use of generative AI in your assessment tasks for this course.

Instructions may include a requirement to submit the original generative AI responses, or drafts of your original work, or provide on request.

## **Submission of Assessment Tasks**

### **Short extensions and special consideration**

#### Short extension

UNSW has a short extension procedure for submission of assessment tasks. Not all tasks are eligible, and eligible tasks have a predetermined extension length. UNSW Medicine and Health have set School-level extension lengths for eligible assessment tasks. See your course assessment descriptions for more information.

Students must check the availability of a short extension in the individual assessment task information for their courses.

Short extensions do not require supporting documentation. They must be submitted through [Special Consideration](#) before the assessment task deadline. No late applications will be accepted.

Late penalties apply to submission of assessment tasks without approved extension.

#### Special consideration

In cases where illness, misadventure or other circumstances beyond your control will prevent you from submitting your assessment by the due date and you require an extension, you need to formally apply for [Special Consideration](#) through myUNSW.

UNSW has a **Fit to Sit/Submit rule**, which means that by sitting or submitting an assessment on the scheduled assessment date, you are declaring that you are fit to do so and cannot later apply for Special Consideration. Examinations include centrally timetabled examinations and

scheduled, timed examinations and tests managed by your School.

Important information relating to Short Extension and Special Consideration is available [here](#), including eligibility for Special Consideration, circumstances where students with Equitable Learning Plans can apply for Short Extensions and Special Consideration, and the appeals process.

## **Examinations**

Information about the conduct of examinations in your course is provided on your course Moodle page.

## **Timed online assessment tasks**

If you experience a technical or connection problem during a timed online assessment, such as a timed quiz, you can apply for Special Consideration. To be eligible to apply you need to contact the Course Convenor and advise them of the issue immediately. You will need to submit an application for Special Consideration immediately, and upload screenshots, error messages or other evidence of the technical issue as supporting documentation. Additional information can be found on: <https://student.unsw.edu.au/special-consideration>

## **Other assessment tasks**

### **Late submission of assessment tasks**

UNSW has standard late submission penalties as outlined in the [UNSW Assessment Implementation Procedure](#), with no permitted variation. All late assignments (unless extension or exemption previously agreed) will be penalised by 5% of the maximum mark per calendar day (including Saturday, Sunday and public holidays).

Late submissions penalties are capped at five calendar days (120 hours). This means that a student is not permitted to submit an assessment more than 5 calendar days (120 hours) after the due date for that assessment (unless extension or exemption previously agreed).

### **Failure to complete an assessment task**

You are expected to complete all assessment tasks for your courses. In some courses, there will be a minimum pass mark required on a specific assessment task (a “hurdle task”) due to the need to assure clinical competency.

Where a hurdle task is applicable, additional information is provided in the assessment information on your course Moodle page.

## Feedback on assessments

Feedback on your performance in assessment tasks will be provided to you in a timely manner. For assessment tasks completed within the teaching period of a course, other than a final assessment, feedback will be provided within 10 working days of submission, under normal circumstances.

Feedback on continuous assessment tasks (e.g. laboratory and studio-based, workplace-based, weekly quizzes) will be provided prior to the midpoint of the course.

Any variation from the above information that is specific to an assessment task will be clearly indicated in the course and assessment information provided to you on your course Moodle (or Open Learning) page.

## Faculty-specific Information

### Additional support for students

The university offers a wide range of support services that are available for students. Here are some links for you to explore.

- The Current Students Gateway: <https://student.unsw.edu.au>
- Academic Skills and Support: <https://student.unsw.edu.au/academic-skills>
- Student support: <https://www.student.unsw.edu.au/support>
- Student Wellbeing, Health and Safety: <https://student.unsw.edu.au/wellbeing>

Mind Smart Guides are a series of mental health self-help resources designed to give you the psychological flexibility, resilience and self-management skills you need to thrive at university and at work.

- Mind Smart Guides: <https://student.unsw.edu.au/mindsmart>

- Equitable Learning Services: <https://student.unsw.edu.au/els>
- Guide to studying online: <https://www.student.unsw.edu.au/online-study>

Most courses in UNSW Medicine & Health use Moodle as your Learning Management System. Guidance for using UNSW Moodle can be found on the Current Student page. Difficulties with Moodle should be logged with the IT Service Centre.

- Moodle Support: <https://student.unsw.edu.au/moodle-support>

The IT Service Desk is your central point of contact for assistance and support with remote and on-campus study.

- UNSW IT Service Centre: <https://www.myit.unsw.edu.au/services/students>

## Course evaluation and development

At UNSW Medicine & Health, students take an active role in designing their courses and their overall student experience. We regularly seek feedback from students, and continuous improvements are made based on your input. Towards the end of the term, you will be asked to participate in the [myExperience survey](#), which serves as a source of evaluative feedback from students. Your input to this quality enhancement process is valuable in helping us meet your learning needs and deliver an effective and enriching learning experience. Student responses are carefully considered, and the action taken to enhance educational quality is documented in the myFeedback Matters section of your Moodle (or Open Learning) course page.

## School-specific Information

### Laboratory or practical class safety.

For courses where there is a laboratory or practical-based component, students are required to wear the specified personal protective equipment (e.g., laboratory coat, covered shoes, safety glasses) indicated in the associated student risk assessments. The student risk assessments will be provided on the course Moodle page and must be read and acknowledged prior to the class.

### Master of Science in Health Data Science courses

Courses in the Master of Science in Health Data Science are hosted through [Open Learning](#). Additional resources are available on the [Health Data Science Student Hub](#).

## School Contact Information

School guidelines on contacting staff:

### Course questions

All questions related to course content should be posted on Moodle (or Open Learning) or as directed by your Course Convenor.

In cases where email communication with course convenors is necessary, we kindly request the following:

- Use your official email address for any correspondence with teaching staff.
- We expect a high standard of communication. All communication should avoid using shorthand or texting language.
- Include your full name, student ID, and your course code and name in all communication.

Our course convenors are expected to respond to emails during standard working hours of Monday to Friday, 9am-5pm.

### Administrative questions

If you have an administrative question about your program of study at the School please submit your enquiry online at [UNSW Ask Us](#).

### Complaints and appeals

Student complaints and appeals: <https://student.unsw.edu.au/complaints>

If you have any grievances about your studies, we invite you to address these initially to the Course Convenor. If the response does not meet your expectations, you may then contact:

School Grievance Officer, Prof Nick Di Girolamo ([n.digirolamo@unsw.edu.au](mailto:n.digirolamo@unsw.edu.au))

**Master of Science in Health Data Science programs:** School Grievance Officer, Dr Sanja Lujic



([s.lujic@unsw.edu.au](mailto:s.lujic@unsw.edu.au))