



UNSW Course Outline

PHAR3202 Neuropharmacology - 2024

Published on the 13 May 2024

General Course Information

Course Code : PHAR3202

Year : 2024

Term : Term 2

Teaching Period : T2

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

This course will cover the basic principles of neuropharmacology with an emphasis on drug action on the central and peripheral nervous systems. The course will first focus on how the major groups of neurotransmitters, including monoamines, amino acids and neuropeptides,

influence the operation of the nervous system. Drugs targeting these transmitter systems in common human brain disorders (major depression, Alzheimer's and Parkinson's Disease, addiction, and epilepsy), will be examined. Issues affecting drug entry into the central nervous system will be addressed. Clinical applications of neuropharmacology, the link between neuropharmacology and behaviour, and current research investigating the development of drugs for neuronal targets will be addressed. Practical classes will complement the lecture material. The course builds upon foundational knowledge acquired in prerequisite pharmacology (PHAR2011) and neuroscience (NEUR2201) courses.

Course Aims

Building on basic prerequisite skills learned in PHAR2011 and NEUR2201, the objectives of this course are to:

1. Provide both knowledge and conceptual understanding of the use and action of various classes of drugs in the treatment of different human diseases affecting the brain.
2. Develop an appreciation of the need for further research to identify new drug targets for more effective therapies.

Relationship to Other Courses

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 the synthetic and metabolic pathways and functions of the major CNS neurotransmitters.
CLO2 : Explain the mechanism of action of specified drug classes used to treat the major types of brain and mind disorders.
CLO3 : Generate, analyse and interpret neuropharmacology data.
CLO4 : Apply knowledge of neuropharmacology techniques and theory to design experiments and test hypotheses.
CLO5 : Demonstrate the ability to work in teams and communicate scientific information effectively to a variety of audiences and in a variety of formats.

Course Learning Outcomes	Assessment Item
CLO1 : Describe the synthetic and metabolic pathways and functions of the major CNS neurotransmitters.	<ul style="list-style-type: none"> • Mid Term Progress Test • Controversial Research Topic in Neuropharmacology • Practical Quizzes • End of Term Examination
CLO2 : Explain the mechanism of action of specified drug classes used to treat the major types of brain and mind disorders.	<ul style="list-style-type: none"> • Mid Term Progress Test • Controversial Research Topic in Neuropharmacology • Practical Quizzes • End of Term Examination
CLO3 : Generate, analyse and interpret neuropharmacology data.	<ul style="list-style-type: none"> • Mid Term Progress Test • Controversial Research Topic in Neuropharmacology • Practical Quizzes • End of Term Examination
CLO4 : Apply knowledge of neuropharmacology techniques and theory to design experiments and test hypotheses.	<ul style="list-style-type: none"> • Mid Term Progress Test • Practical Quizzes • End of Term Examination
CLO5 : Demonstrate the ability to work in teams and communicate scientific information effectively to a variety of audiences and in a variety of formats.	<ul style="list-style-type: none"> • Controversial Research Topic in Neuropharmacology

Learning and Teaching Technologies

Moodle - Learning Management System | Microsoft Teams | Echo 360

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
Mid Term Progress Test Assessment Format: Individual	20%	Start Date: 27/06/2024 09:00 AM Due Date: 27/06/2024 10:00 AM
Controversial Research Topic in Neuropharmacology Assessment Format: Group	20%	Start Date: Group debate presentations are on July 12 Due Date: Individual Debate synopsis is due 19 July
Practical Quizzes Assessment Format: Individual	10%	Start Date: Available from Monday 9am of Week 3, Week 5 and Week 10 Due Date: Due Monday 5pm of Week 3, Week 5 and Week 10
End of Term Examination Assessment Format: Individual	50%	Start Date: During exam period Due Date: During exam period

Assessment Details

Mid Term Progress Test

Assessment Overview

Your mid term progress test assessment will be in the format of multiple choice and short answer questions. Questions will be based on the material covered in the lectures, practical classes and tutorials, from the first half of the course. Once graded, you will receive feedback (correct / incorrect options) for the multiple choice questions. For the short answer questions, general feedback from the performance of the cohort will be provided on the LMS. Your results will be posted on the LMS when graded.

Course Learning Outcomes

- CLO1 : Describe the synthetic and metabolic pathways and functions of the major CNS neurotransmitters.
- CLO2 : Explain the mechanism of action of specified drug classes used to treat the major types of brain and mind disorders.
- CLO3 : Generate, analyse and interpret neuropharmacology data.
- CLO4 : Apply knowledge of neuropharmacology techniques and theory to design experiments and test hypotheses.

Detailed Assessment Description

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

Submission notes

Refer to Moodle for submission information.

Assessment information

Use of generative artificial intelligence: No Assistance

UNSW Pro-Vice Chancellor Education and Student Experience (PVCESE) provides guidance on the [use of generative Artificial Intelligence](#) in assessments.

It is prohibited to use any software or service to search for or generate information or answers. If such use is detected, it will be regarded as serious academic misconduct and subject to the standard penalties, which may include 00FL, suspension and exclusion.

Assignment submission Turnitin type

Not Applicable

Controversial Research Topic in Neuropharmacology

Assessment Overview

You will work in groups of 3-6 students to research a “Controversial Research Topic in Neuropharmacology”. In collaboration with your group members, you will develop an argument for or against a given topic, and present it to the class during the designated practical time slot. Your group will be required to keep a log of the contributions made by each group member. Following the debate, you will also submit an individual written synopsis of your own research into the debate topic. The group oral presentation (research debate) is worth 12.5%, the group work log is worth 2.5%, and the individual written synopsis is worth 5%. Separate marking rubrics will be used to evaluate the group oral presentation, groupwork log and individual synopsis. Written feedback will be returned to the group for the presentation, written feedback will be provided on the group work logs and written feedback will be provided for the synopsis. Overall results will be posted on the LMS.

Course Learning Outcomes

- CL01 : Describe the synthetic and metabolic pathways and functions of the major CNS neurotransmitters.
- CL02 : Explain the mechanism of action of specified drug classes used to treat the major types of brain and mind disorders.
- CL03 : Generate, analyse and interpret neuropharmacology data.
- CL05 : Demonstrate the ability to work in teams and communicate scientific information effectively to a variety of audiences and in a variety of formats.

Detailed Assessment Description

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

Submission notes

Refer to Moodle for submission information.

Assessment information

Use of generative artificial intelligence: Full assistance with attribution.

UNSW Pro-Vice Chancellor Education and Student Experience (PVCESE) provides guidance on the [use of generative Artificial Intelligence](#) in assessments.

This assessment requires you to write a first draft of the assessment yourself in English. Generative AI software can be used to improve the writing and argumentative style, but your own original draft must be attached as an appendix. Any output of generative AI software that is used within your assessment must be attributed with full referencing. If the outputs of generative AI software form part of your submission and is not appropriately attributed, your marker will determine whether the omission is significant. If so, you may be asked to explain your understanding of 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.

Practical Quizzes

Assessment Overview

Your quiz assessments will be in the format of multiple choice and short answer questions. There will be three equally weighted online practical quizzes, evenly spaced across the term. Once graded, you will receive feedback (correct/incorrect options) for the multiple choice questions. For the short answer questions, general feedback from the performance of the cohort will be provided on the LMS. Your results will be posted on the LMS.

Course Learning Outcomes

- CL01 : Describe the synthetic and metabolic pathways and functions of the major CNS neurotransmitters.
- CL02 : Explain the mechanism of action of specified drug classes used to treat the major types of brain and mind disorders.
- CL03 : Generate, analyse and interpret neuropharmacology data.
- CL04 : Apply knowledge of neuropharmacology techniques and theory to design experiments and test hypotheses.

Detailed Assessment Description

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

Submission notes

Refer to Moodle for submission information.

Assessment information

Use of generative artificial intelligence: No Assistance

UNSW Pro-Vice Chancellor Education and Student Experience (PVCESE) provides guidance on the [use of generative Artificial Intelligence](#) in assessments.

It is prohibited to use any software or service to search for or generate information or answers. If such use is detected, it will be regarded as serious academic misconduct and subject to the standard penalties, which may include 00FL, suspension and exclusion.

End of Term Examination

Assessment Overview

Your end of term examination assessment will be in the format of multiple choice and short answer questions. These questions will be based on all material covered in the lectures, practical classes and tutorials, throughout the course. The exam will be held during the official exam period. Once graded, you will receive feedback (correct / incorrect options) for the multiple choice questions. For the short answer questions, general feedback from the performance of the cohort will be provided on the LMS.

Course Learning Outcomes

- CL01 : Describe the synthetic and metabolic pathways and functions of the major CNS neurotransmitters.
- CL02 : Explain the mechanism of action of specified drug classes used to treat the major types of brain and mind disorders.
- CL03 : Generate, analyse and interpret neuropharmacology data.
- CL04 : Apply knowledge of neuropharmacology techniques and theory to design experiments and test hypotheses.

Detailed Assessment Description

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

Submission notes

Refer to Moodle for submission information.

Assessment information

Use of generative artificial intelligence: No Assistance

UNSW Pro-Vice Chancellor Education and Student Experience (PVCESE) provides guidance on the [use of generative Artificial Intelligence](#) in assessments.

It is prohibited to use any software or service to search for or generate information or answers. If such use is detected, it will be regarded as serious academic misconduct and subject to the standard penalties, which may include 00FL, suspension and exclusion.

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 : 27 May - 2 June	Lecture	Course Introduction/Neurochem Transmission
	Lecture	Acetylcholine / Dopamine / Noradrenaline / Serotonin
	Tutorial	Summarising Research Articles
	Web	Q&A: Neurotransmission
	Laboratory	Behavioural Pharmacology/Research Debate Intro
Week 2 : 3 June - 9 June	Lecture	ATP & NO as Neurotransmitters
	Lecture	Neuropeptides as Transmitters
	Tutorial	Cutting Edge Research in Neuropharmacology – How can we study neurotransmission?
	Web	Q&A: ATP/NO and Neuropeptides
	Laboratory	Behavioural Pharmacology in Crickets I
Week 3 : 10 June - 16 June	Lecture	Amino Acids - Glutamate
	Lecture	Amino Acids - GABA & Glycine, Neurotrophic Factors
	Tutorial	CNS Neurotransmitters
	Web	Q&A: Amino Acids & Neurotrophic Factors
	Laboratory	Behavioural Pharmacology in Crickets II
Week 4 : 17 June - 23 June	Lecture	Mood Disorders I
	Lecture	Mood Disorders II
	Tutorial	Treatments for Mood / Psychiatric Disorders
	Laboratory	Barbiturates
	Web	Q&A: Mood Disorders
Week 5 : 24 June - 30 June	Lecture	Therapeutic Use of Stimulants
	Lecture	Pain & Analgesia
	Tutorial	Pain management (online module)
	Other	MID TERM TEST
	Laboratory	Debate Review
Week 7 : 8 July - 14 July	Lecture	Drug Addiction / Dependence
	Lecture	Stroke & Neuroprotection
	Tutorial	Drugs of Addiction
	Web	Q&A: Stimulants, Pain/Analgesia, Addiction & Stroke
	Laboratory	RESEARCH DEBATES
Week 8 : 15 July - 21 July	Lecture	Epilepsy & Anticonvulsants
	Lecture	Neurodegeneration I: PD
	Tutorial	Neuronal Toxicity
	Web	Epilepsy & Parkinson's Disease
	Laboratory	Seizures
Week 9 : 22 July - 28 July	Lecture	Neurodegeneration II: Alzheimers Disease
	Lecture	Neurodegeneration III: Huntington's Disease & Amyotrophic Lateral Sclerosis
	Tutorial	Treatments for Neurological Disorders
	Laboratory	Neurotoxicity I
	Web	Q&A: Neurodegeneration
Week 10 : 29 July - 4 August	Lecture	General & Local Anaesthetics
	Lecture	CNS Drugs & Blood Brain Barrier
	Tutorial	Final Exam Revision (+ Practice Exam)
	Laboratory	Neurotoxicity II
	Web	Anaesthetics & Blood Brain Barrier

Attendance Requirements

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

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 myExperience surveys 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 complete the myExperience surveys for this course posted at the top of the Moodle page at the end of term.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Natasha Kumar		Level 3 Wallace Wurth Building Room 325		Monday - Friday 8am-6pm	No	Yes
	Marty Le Nedelec		Level 3 Wallace Wurth Building, Room 323		Monday - Friday 8am-6pm	No	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 your assessment tasks. Options for the use of generative AI include: (1) no assistance; (2) simple editing assistance; (3) planning assistance; and (4) full assistance with attribution.

You may be required to submit the original generative AI responses, or drafts of your original work. Inappropriate use of generative AI is considered academic misconduct.

See your course Moodle (or Open Learning) page for the full instructions for individual assessment tasks for your course.

Submission of Assessment Tasks

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.

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>

Examinations

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

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](#).

Recording of lectures, tutorials and other teaching activities (MSc. HDS only)

Lectures, tutorials and other teaching activities may be recorded. Students should be advised that they are consenting to the recording by their enrolment in the course or participation in the activity. The purpose of audio and video recordings is to enhance the student experience by supporting engaged learning in an online teaching environment and ensure equitable access to all course resources for our students. If you have concerns about accessing course recordings, or being recorded, please contact the Course Convenor.

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 short-hand 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)

Health Data Science programs: School Grievance Officer, Dr Sanja Lujic (s.lujic@unsw.edu.au)