

PHAR3251

Clinical & Experimental Pharmacology

**Course Outline
Term 1, 2022**

**School of Medical Sciences
Faculty of Medicine & Health**

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1. Staff

Position	Name	Email	Consultation times and locations	Contact Details
Course Convenor	Matt Perry	m.d.perry@unsw.edu.au		+61 2 9385 1336
Co-convenor	Martin Le Nedelec	m.lenedelec@unsw.edu.au		+61 2 9065 2949
Lecturer	Prof Margaret Morris Prof Jeff Holst A/Prof Nicola Smith Dr Trudie Binder Dr Greg Smith Dr David Jacques Prof Nigel Turner	m.morris@unsw.edu.au j.holst@unsw.edu.au nicola.smith@unsw.edu.au w.binder@unsw.edu.au g.smith@unsw.edu.au d.jacques@unsw.edu.au n.turner@unsw.edu.au		
Tutors				

2. Course information

Units of credit: 6

Pre-requisite(s): PHAR2011. Highly recommended PHSL2201 and BIOC 2101 or BIOC2181 or BIOC2201.

Teaching times and locations:

<http://timetable.unsw.edu.au/2022/PHAR3251.html>

2.1 Course summary

Clinical & Experimental Pharmacology (PHAR3251) is a 3rd year Science Course worth Six Units of Credit (6 UOC). The course is usually undertaken as part of a major in Pharmacology for the Bachelor of Science (Adv.) or Bachelor of Medical Sciences or as part of the Bachelor of Medicinal Chemistry. The course builds on the information you have gained in Pharmacology (PHAR2011) and Physiology (PHSL2101).

Students are also highly recommended to take PHSL2201 as well as Biochemistry (BIOC2101/2181) and Molecular Biology (2201/2291) or Chemistry (2021/2041).

The clinical and experimental pharmacology (PHAR3251) course deals with the pharmacology of different drug classes, with an emphasis on the mode of drug action and adverse drug effects. Effects of drugs on the major organ systems will be covered, focusing on the cardiovascular and endocrine systems, as well as anti-cancer therapies. You will be introduced to emerging therapeutic strategies based on advances in our understanding of cellular physiology and drug action. The practicals will cover basic pharmacological methods from both clinical and experimental standpoints.

2.2 Course aims

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

- a) develop knowledge and conceptual understanding of the use and action of various classes of drugs in the treatment of different human diseases
- b) introduce and develop an understanding of the use of selected formulae to predict drug concentration in, and clearance from, the human body
- c) develop an appreciation of the need for further research to identify new drug targets for more effective therapies.

2.3 Course learning outcomes (CLO)

1. Demonstrate an understanding of the clinical application of a range of drug classes.
2. Describe the mechanism of action of specified drug classes used to treat the major types of disease.
3. Accurately perform experiments, record data, draw conclusions from experimental data and write up a scientific report.
4. Demonstrate their ability to work in teams and communicate scientific information effectively to a variety of audiences and in a variety of formats.

2.4 Relationship between course and program learning outcomes and assessments

Course Learning Outcome (CLO)	LO Statement	Related Tasks & Assessment
CLO 1	Demonstrate an understanding of the clinical application of a range of drug classes.	A1, A2, A3, A4
CLO 2	Describe the mechanism of action of specified drug classes used to treat the major types of disease.	A1, A2, A3, A4
CLO 3	Accurately perform experiments, record data, draw conclusions from experimental data and write up a scientific report.	A2
CLO 4	Demonstrate their ability to work in teams and communicate scientific information effectively to a variety of audiences and in a variety of formats.	A3

3. Strategies and approaches to learning

3.1 Learning and teaching activities

The learning and teaching philosophy underpinning this course is centred on student learning and aims to create an environment, which interests, challenges, and enthuses you, the students. The teaching is designed to be relevant and engaging in order to prepare you for future careers in pharmacology or related disciplines. The primary source of information for this course is the lecture material, with the question and answer sessions, tutorials, practical classes and online material directly complementing and supporting the lecture material. Additionally, effective learning can also be enhanced through self-directed use of other resources such as textbooks, literature references and web-based sources.

Learning activities occur on the following days and times:

Lectures: 2 topics per week. Lectures will be pre-recorded and available online prior to the week scheduled.

Collaborative learning tutorials: One tutorial per week, delivered face to face (or online for approved students) on Wednesdays at either 9 - 10 am or 10 - 11 am (depending on the group).

Laboratory practicals: One laboratory practical each week to be held face to face (or online for approved students) on Thursdays 3 – 6 pm. The practicals are a core part of your learning experience in the sciences.

Q & A sessions: Online on Wednesdays 12 – 1 pm.

Mid-session exam: Week 5 (covers content from weeks 1-4) and will be held within the Q & A session of week 5.

Information regarding weekly activities will be available via the interactive timetable on Moodle and in weekly announcements via Moodle.

3.2 Expectations of students

You 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 50 hours throughout the term and you are expected (and strongly recommended) to do at least the same number of hours of additional study.

Lectures will provide you with the concepts and theory essential for an understanding of pharmacology. To assist in the development of applied pharmacology skills, collaborative learning tutorials and laboratory practical classes will be held face to face (or online for approved students). These classes allow you to engage in a more interactive form of learning than is possible in lectures. It is up to you to ensure you perform well in each part of the course by preparing for classes, actively engaging in face to face and online classes, completing assignments, studying for exams, and seeking assistance to clarify understanding. Past exam questions are provided to assist you in preparing for examinations.

If you wish to contact the course convenors or staff, you can do so by e-mail or Microsoft Teams, using the details provided in section 1 of this document and on the course Moodle page. We are committed to providing the best experience and outcome for all students and will therefore endeavour to respond to e-mails as soon as possible, but please consider the following:

- Standard work hours are Monday to Friday from 8 am to 6 pm. E-mail correspondence received outside of this time may be dealt with from the next working day.
- All digital correspondence, including e-mail, Teams messages, and messages on discussion forums should be respectful, courteous, and polite.
- All staff and students have busy schedules and multiple commitments, so while staff will endeavour to answer e-mail correspondence as quickly as possible, please apply appropriate expectations in this regard (i.e. 48 hours on a workday).

To help us improve the course, please consider providing us with feedback by acting as a student liaison, and/or by completing the MyExperience survey later in the term.

4. Course schedule and structure

This course consists of 50 hours of class contact hours. You are expected to take an additional 50 hours of non-class contact hours to complete assessments, readings and exam preparation.

Week [Date/Session]	Topic [Module]	Activity [Learning opportunity]	Related CLO
Week 1	Clinical Pharmacology Pharmacokinetics 1 Clinical case studies General & Pharmacokinetics Scientific communication	Lecture Lecture Tutorial Q & A Laboratory practical	CLO1, CLO2, CLO3, CLO4
Week 2	Pharmacokinetics 2 Non-targeted anti-cancer therapies Pharmacokinetics Pharmacokinetics Pharmacokinetics	Lecture Lecture Tutorial Q & A Laboratory practical	CLO1, CLO2, CLO3, CLO4
Week 3	Targeted anti-cancer therapies Emerging anti-cancer therapies Cancer Cancer Targeted vs non-targeted cancer therapies	Lecture Lecture Tutorial Q & A Laboratory practical	CLO1, CLO2, CLO3, CLO4
Week 4	Reproductive drugs Respiratory drugs Reproductive drugs Respiratory / reproductive drugs Cancer therapy data analysis	Lecture Lecture Tutorial Q & A Laboratory practical	CLO1, CLO2, CLO3, CLO4
Week 5	Anti-viral drugs Anti-viral drugs How to write a scientific report Mid-term progress exam	Lecture Tutorial Laboratory practical Assessment	CLO1, CLO2, CLO3, CLO4
Week 7	Antibiotics	Lecture	CLO1, CLO2, CLO3, CLO4

	Anti-hypertensive drugs Cardiovascular drugs 1 Antibiotics / CV drugs Poster feedback	Lecture Tutorial Q & A Laboratory practical	
Week 8	Heart Failure Lipid lowering drugs Cardiovascular drugs 2 Cardiovascular drugs Beta-adrenoceptor antagonists	Lecture Lecture Tutorial Q & A Laboratory practical	CLO1, CLO2, CLO3, CLO4
Week 9	Anti-thrombotic drugs Diabetes Endocrine drugs Diabetes Diuretic drugs	Lecture Lecture Tutorial Q & A Laboratory practical	CLO1, CLO2, CLO3, CLO4
Week 10	Obesity Thyroid and Bone Experimental pharmacology Obesity / Thyroid & Bone Poster presentations	Lecture Lecture Tutorial Q & A Assessment	CLO1, CLO2, CLO3, CLO4

Exam Period: 29th April – 12th May 2022

Supplementary Exam Period: 23rd May – 27th May 2022

5. Assessment

5.1 Assessment tasks

Assessment task	Length	Weight (%)	Mark	Due date and time
Assessment 1: Mid-term progress exam		15		16/03/2022
Assessment 2: Written practical report	1500 words	15		11.59 pm 01/04/2022
Assessment 3: Group project – poster presentation		15		21/04/2022
Assessment 4: Final exam		55		TBD

Written assessment tasks must be submitted electronically via Moodle, through Turnitin. A penalty will apply for late submissions (please see section 5.3 in this document).

Mid-term progress exam:

The mid-term progress exam will be held online in week 5, on 16th of March 2022 at 12 - 1 pm. This exam will give you feedback on how you are succeeding in the course. The progress examination and end of session examination will test not only your knowledge of drugs used to treat important diseases but also your ability to apply the knowledge you have acquired from multiple lectures to identifying areas of research on appropriate drug targets. The examinations will be in the form of multiple-choice questions and short answer questions. The questions will be based on the material covered in the lectures, online content, practical classes and collaborative learning tutorials. Material covered prior to the progress exam may be examined again in the final exam. The mid-term exam will address CLO's 1 and 2.

Written practical report:

The practical report will be written individually, using class data generated and analysed in the practical classes in weeks 3 and 4. You will be given instruction on how to prepare your report for submission via Moodle, as well as in the practical class in week 5. This assessment task will address CLO's 1, 2, and 3. A PDF version of the practical report must be submitted via Moodle, through Turnitin, before 11.59 pm on Friday 1st of April 2022 (week 7). There will be a penalty for late submission (please see section 5.3 in this document) unless you have received approval for special consideration. Information for the practical report, including the structure and marking criteria, will be available via Moodle.

Group project - poster presentation:

You will work in teams (of approximately four students) to research a topic for presentation as a scientific poster. All members of the group are required to contribute to this task. Each group will need to research the topic and search for relevant information based on the latest scientific literature. The poster will be displayed face to face (or online) during a poster presentation and viewing session on

Thursday 21st of April 2022 from 3 pm to 6 pm. You will be expected to answer questions relating to the topic both individually and as a group. All members of the group will be required to participate in the presentation. Team members will also provide an assessment of each member's contribution to the team, this will be used to moderate each individual's grade based on contribution. The poster presentation will be graded on scientific content, visual communication and verbal presentation by two academic staff. Poster titles (topics) will be made available by week 2. This assessment task will allow you to develop your research, information literacy, communication and time management skills, as well as allowing you to demonstrate your ability to work in a team and collaborate successfully (CLO's 1, 2, and 4). Information for the poster presentation (topic titles, marking criteria etc.) will be posted on Moodle. An information session on 'Scientific communication: posters' will occur during the practical class in week 1, and a poster feedback session that will allow groups to ask questions and receive feedback on their poster drafts will occur during the practical class in week 7.

Final Exam:

The final examination will be held during the official final examination period for Term 1 (2022) from Friday, 29th of April to Thursday, 12th of May 2022. The final exam will consist of multiple choice questions and short answer questions.

Formative assessment:

The formative assessment is in the form of online questions, which are created to help you revise before the mid-term progress examination. You will receive assessment results and feedback immediately once the task is completed and questions will cover material during the first three weeks of the course. The online questions will address graduate learning outcomes 1 and 2, as well as providing you feedback on how you are progressing in the course.

Further information

UNSW grading system: <https://student.unsw.edu.au/grades>

UNSW assessment policy: <https://student.unsw.edu.au/assessment>

5.2 Assessment criteria and standards

Practice exam questions will be made available to you via Moodle, as well as during the collaborative learning tutorial sessions.

Details regarding the assessment tasks, including the group project, will be provided to you during the first laboratory practical session in week 1, as well as being available on the course Moodle page. A detailed marking rubric for the group project and the written practical report will be provided to you via the course Moodle page.

5.3 Submission of assessment tasks

Late Submission

Late submissions will be penalized at 5% per day capped at five days (120 hours). Students will not be permitted to submit their assessments after this date.

Special Consideration

If you experience a short-term event beyond your control (exceptional circumstances) that impacts your performance in a particular assessment task, you can apply for Special Considerations.

You must apply for Special Consideration **before** the start of your exam or due date for your assessment, except where your circumstances of illness or misadventure stop you from doing so.

If your circumstances stop you from applying before your exam or assessment due date, you must **apply within 3 working days** of the assessment, or the period covered by your supporting documentation.

More information can be found on the [Special Consideration website](#).

5.4. Feedback on assessment

Assessment 1: Mid-term progress exam. Individual marks are provided via Moodle once the exams have been graded. Cohort feedback is provided in the form of a post or podcast via the course Moodle page in week 7.

Assessment 2: Written report. Individual feedback for the written reports will be available via Moodle once the reports have been graded (by week 10).

Assessment 3: Group Project. Feedback will be provided via a rubric and written comment for final submission, available through Moodle. Peer feedback will be submitted via an online form and the individual grades providing feedback will be available via Moodle.

Assessment 4: Final examination. Cohort feedback is provided once the exams are completed in the form of a post in Moodle.

6. Academic integrity, referencing and plagiarism

Referencing is a way of acknowledging the sources of information that you use to research your assignments. You need to provide a reference whenever you draw on someone else's words, ideas or research. Not referencing other people's work can constitute plagiarism.

Please use APA referencing style for this course.

Further information about referencing styles can be located at

<https://student.unsw.edu.au/referencing>

Academic integrity is fundamental to success at university. Academic integrity can be defined as a commitment to six fundamental values in academic pursuits: honesty, trust, fairness, respect, responsibility and courage.¹ At UNSW, this means that your work must be your own, and others' ideas

¹ International Center for Academic Integrity, 'The Fundamental Values of Academic Integrity', T. Fishman (ed), Clemson University, 2013.

should be appropriately acknowledged. If you don't follow these rules, plagiarism may be detected in your work.

Further information about academic integrity and **plagiarism** can be located at:

- The Current Students site <https://student.unsw.edu.au/plagiarism>, and
- The ELISE training site <http://subjectguides.library.unsw.edu.au/elise/presenting>

The Conduct and Integrity Unit provides further resources to assist you to understand your conduct obligations as a student: <https://student.unsw.edu.au/conduct>.

7. Readings and resources

Katzung GG. Basic & Clinical Pharmacology. 14th Edition (2018); New York: McGraw-Hill.

Brunton LL, Hilal-Dandan R, Knollmann BC. Goodman and Gilman's the Pharmacological Basis of Therapeutics. 13th Edition (2018). New York: McGraw-Hill Medical.

8. Administrative matters

Student enquiries should be submitted via student portal <https://portal.insight.unsw.edu.au/web-forms/>

9. Additional support for students

- The Current Students Gateway: <https://student.unsw.edu.au/>
- Academic Skills and Support: <https://student.unsw.edu.au/academic-skills>
- Student Wellbeing and Health <https://www.student.unsw.edu.au/wellbeing>
- UNSW IT Service Centre: <https://www.myit.unsw.edu.au/services/students>
- UNSW Student Life Hub: <https://student.unsw.edu.au/hub#main-content>
- Student Support and Development: <https://student.unsw.edu.au/support>
- IT, eLearning and Apps: <https://student.unsw.edu.au/elearning>
- Student Support and Success Advisors: <https://student.unsw.edu.au/advisors>
- Equitable Learning Services (Formerly Disability Support Unit): <https://student.unsw.edu.au/els>
- Transitioning to Online Learning <https://www.covid19studyonline.unsw.edu.au/>
- Guide to Online Study <https://student.unsw.edu.au/online-study>