



Course Outline

CHEM1151

Introductory Medicinal Chemistry

School of Chemistry

Faculty of Science

Term 1, 2021

1. Staff

Position	Name	Email	Consultation times and locations
Course convenor, lecturer and workshop facilitator	Jason Harper	j.harper@unsw.edu.au	By appointment
Lecturer	Luke Hunter	l.hunter@unsw.edu.au	By appointment
Workshop facilitator	Naresh Kumar	n.kumar@unsw.edu.au	By appointment
Lecturer and workshop facilitator	Siobhán Wills	siobhan.wills@unsw.edu.au	By appointment

2. Course information

Units of credit: 6

Pre-requisite(s): none

Teaching times and locations: see <http://timetable.unsw.edu.au/2021/CHEM1151.html>

2.1 Course summary

This course will provide students with an understanding of what medicinal chemistry is and how it is carried out. It will describe the interdisciplinary process of how pharmaceutical drugs are designed and developed. The course is based on a series of lectures, tutorials, workshops and colloquia on topics of relevance to medicinal chemistry. The course is only available to students enrolled in programme 3999 and cannot be used as a general education course. **Note:** Assumed knowledge equivalent to year 12 chemistry.

2.2 Course aims

The course aims to provide new B. Med. Chem. (programme 3999) students with a broad appreciation of what medicinal chemistry is, how it is used in the discovery and design of drugs, and the underlying fundamental science on which it is based. On completing CHEM1151 students should understand the connection between chemistry, biology, pharmacology and medicine. This course will provide an opportunity to build a medicinal chemistry cohort.

2.3 Course learning outcomes (CLO)

At the successful completion of this course you (the student) should be able to:

1. Understand basic concepts in organic chemistry;
2. Describe the process by which new therapeutic drugs are discovered and developed;
3. Appreciate the role medicinal chemistry plays in helping to solve problems in daily life, science and society;
4. Demonstrate teamwork skills;
5. Demonstrate (oral and written) scientific communication skills.

2.4 Relationship between course and programme learning outcomes and assessments

Course Learning Outcome (CLO)	Programme Learning Outcome (PLO)	Related Tasks & Assessment
CLO 1	<p>Upon completion of a bachelor degree with a major in chemistry, graduates will be able to exhibit depth and breadth of chemistry knowledge by:</p> <ul style="list-style-type: none"> Demonstrating a knowledge of, and applying the principles and concepts of chemistry 	Mid-session test, final exam
CLO 2	<p>Upon completion of a bachelor degree with a major in chemistry, graduates will be able to understand ways of scientific thinking by:</p> <ul style="list-style-type: none"> Recognising the creative endeavour involved in acquiring knowledge, and the testable and contestable nature of the principles of chemistry Recognising that chemistry plays an essential role in society and underpins many industrial, technological and medical advances 	Mid-session test, final exam
CLO 3	<p>Upon completion of a bachelor degree with a major in chemistry, graduates will be able to understand ways of scientific thinking by:</p> <ul style="list-style-type: none"> Understanding and being able to articulate aspects of the place and importance of chemistry in the local and global community 	Workshop assignments, final exam
CLO 4	<p>Upon completion of a bachelor degree with a major in chemistry, graduates will be able to take personal, professional and social responsibility by:</p> <ul style="list-style-type: none"> Demonstrating a capacity for self-directed learning Recognising the relevant and required ethical conduct and behaviour within which chemistry is practised 	Workshop assignments
CLO 5	<p>Upon completion of a bachelor degree with a major in chemistry, graduates will be able to communicate chemical knowledge by:</p> <ul style="list-style-type: none"> Presenting information, articulating arguments and conclusions, in a variety of modes, to diverse audiences, and for a range of purposes 	Workshop assignments

3. Strategies and approaches to learning

3.1 Learning and teaching activities

Each week, you will do the following activities:

- **2 x lectures (2 h each).** You will need to take your own notes. These lectures will also include a variety of tutorial-style practice problems.
- **1 x workshop (3 h).** You will be randomly assigned into pairs, three times during the Term. For each of the resulting three 3-week blocks, you will spend the first two workshops preparing an oral presentation and a written report with your partner. In the third workshop, you will present your oral presentation to the class.

3.2 Expectations of students

A major difference between high school and university is that you are now expected to take responsibility for your own learning. This means that no-one will chase you up if you start falling behind in your attendance or assessments, let alone your independent study.

As a general rule, you should plan to do about one hour of independent study (e.g. completing assignments, readings and exam preparation) for every face-to-face hour of the course. In addition, you should manage your time so that you can study progressively throughout the term rather than leaving it to the last minute.

If you find yourself struggling or falling behind, several avenues of support are available to you (see Section 9 of this outline); but you must seek this support yourself.

In this course, attendance is recorded in the workshops, and an 80% attendance record is an essential requirement for passing the course.

4. Course schedule and structure

Week	Topic	Learning opportunities	Related CLO
Week 1	Introduction to medicinal chemistry	Lectures; workshop	1,3,4
Week 2	Introduction to medicinal chemistry	Lectures; workshop	1,3,4
Week 3	Introduction to medicinal chemistry	Lectures; workshop	1,3,4,5
Week 4	The drug discovery process	Lectures; workshop	2,3,4
Week 5	The drug discovery process	Lectures; workshop	2,3,4
Week 6	Flexibility week	No classes	
Week 7	The drug discovery process	Lectures; workshop	2,3,4,5
Week 8	Antimicrobial Agents	Lectures; workshop	2,3,4
Week 9	Antimicrobial Agents	Lectures; workshop	2,3,4
Week 10	Antimicrobial Agents	Lectures; workshop	2,3,4,5

5. Assessment

5.1 Assessment tasks

In order to pass this course, you must achieve ALL of the following:

- An overall course mark of 50 or above;
- A minimum mark of 35% (weight-averaged) for the mid-session test and final exam;
- A minimum of 80% attendance for the workshops;
- Completion of all workshop assessments.

Failure to satisfy all of these criteria could result in either a FL or UF (Unsatisfactory Fail) grade being awarded, or further assessment being offered at the sole discretion of the course coordinator. You must ensure your availability to attend any supplementary examination that will usually be offered in the week suggested by UNSW; inability or failure to attend a supplementary examination may lead to a FL or UF (Unsatisfactory Fail) grade being confirmed.

Assessment task	Weight	Details
Assessment 1: Workshop oral presentations #1, #2 and #3	20%	You and your partner will deliver a 5-minute PowerPoint presentation to the class, during the regular timetabled workshop in weeks 3, 7 and 10. For each presentation, you should ensure that both members of the pair have equal speaking time. You will be marked individually, by the academic staff members in attendance. You will have a different partner for each workshop presentation.
Assessment 2: Workshop written reports #1, #2 and #3	20%	You and your partner will submit a 2-to-3-page written report at the end weeks 3, 7 and 10. For each report, you and your partner will receive the same mark. You will have a different partner for each report.
Assessment 3: Mid-session test	20%	The mid-session test is tentatively scheduled to take place during one of your regular lecture times in Week 5. But this is subject to change, depending, for example, on room availability. See Moodle for the definitive information on times and venues. The mid-session test consists of a mixture of multi-choice and written-answer questions. You will enter your answers directly into the test booklet. The test is conducted under exam conditions (see the UNSW assessment policy below for further information). In particular, you must write your names and ID on your test paper before the end of writing time.
Assessment 4: Final examination	40%	The final exam is of 2 hours' duration. It consists of a mixture of multi-choice and written-answer questions.

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

A past mid-session test paper will be made available on Moodle, along with an associated marking rubric.

A past exam paper will be made available on Moodle, along with an associated marking rubric.

Rubrics for the oral and written workshop presentations will be made available on Moodle.

5.3 Submission of assessment tasks

Workshop written reports are submitted through Moodle, using the Turnitin feature.

Examinations will be held face-to-face, as will workshops.

5.4. Feedback on assessment

You will receive feedback on each workshop oral presentation in the form of an annotated marking rubric. You will receive this during the next workshop session.

You will receive feedback on your written reports via an annotated marking rubric, either within the Turnitin feature on Moodle or on paper. It typically takes a few weeks for this to be completed.

Your mid-session test score will be communicated to you via Moodle. Marking and processing typically takes a few weeks.

The results of the final exam will not be communicated to you explicitly. Instead, you will receive an overall mark for the course once the results have been finalised.

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.

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. At UNSW, this means that your work must be your own, and others' ideas 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/presentation>

The *Student 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

Textbooks:

- “Molecules and Medicine” by Corey, Czado and Kurti

8. Administrative matters

If you have any administrative questions, try the following sources of information (in order):

- This course outline
- The Moodle site for this course (including the Important Announcements and FAQ sections)
- The Science Student Centre (+61 (2) 9385 6125; Robert Webster Building 128;
<http://www.science.unsw.edu.au/current-students/science-student-centre>)

9. Additional support for students

The School of Chemistry provides a free duty tutor service. This service offers one-on-one tuition, by a chemistry professional, on any aspect of chemistry theory that you need help with. The duty tutor service operates most days during the term, on a drop-in basis (see Moodle for times and venues). Please take advantage of this service early during the term, because it typically becomes oversubscribed just before major assessments.

Other avenues of support include:

- The Current Students Gateway: <https://student.unsw.edu.au/>
- Academic Skills and Support: <https://student.unsw.edu.au/skills>
- Student Wellbeing, Health and Safety: <https://student.unsw.edu.au/wellbeing>
- Disability Support Services: <https://student.unsw.edu.au/disability>
- UNSW IT Service Centre: <https://www.it.unsw.edu.au/students/index.html>