



The University of Southern Queensland

Course specification

Description: Introduction to Drug Discovery

Subject	Cat-nbr	Class	Term	Mode	Units	Campus
CHE	2203	41197	1, 2005	ONC	1.00	Toowoomba

Academic group:	FOSCI
Academic org:	FOS002
Student contribution band:	2
ASCED code:	010599

STAFFING

Examiner: Ray Marshall

Moderator: Tania van den Ancker

REQUISITES

Pre-requisite: CHE2120

RATIONALE

This subject builds upon the work studied in CHE2120 Chemistry 2. Apart from being a vital and exciting part of chemistry, medicinal chemistry acts as a linker between the chemical and the biological sciences in the areas of organic chemistry and structural biology. This course provides a foundation for the interdisciplinary area of medicinal chemistry and is well suited to chemistry, biotechnology and biomedical science students.

SYNOPSIS

This course is offered in odd years only. It is designed to stress the important principles and concepts of medicinal chemistry and how they are utilised in drug discovery. The course will cover topics such as how compounds are identified, selected & developed into drug products, in silico drug design and discovery, combinatorial chemistry, computer modelling and chemical solubility. A laboratory component is included to complement the work covered in the theory component.

OBJECTIVES

On completion of this course students will be able to:

1. demonstrate an understanding of the principles behind chemical identification and lead compound development;
2. demonstrate an understanding of basic combinatorial strategies;
3. use of the techniques of molecular modelling and computer assisted calculations to find possible lead compounds;
4. utilise their practical experience in basic medicinal chemistry techniques.

TOPICS

Description	Weighting (%)
1. Classification of drugs (chemical, pharmacological, physiological, prodrugs), drug targets, bioassays, finding lead compounds, clinical trials, ethics.	25.00
2. Drug discovery by design (stereochemical concerns, SAR's, QSAR's, computer aided drug discovery, combinatorial chemistry), drug solubility, clinical trials, ethics, case study - cimetidine.	50.00
3. Practical view of concepts covered in Topics 1 and 2 above through laboratory classes.	25.00

TEXT and MATERIALS required to be PURCHASED or ACCESSED

ALL textbooks and materials are available for purchase from USQ BOOKSHOP (unless otherwise stated). Orders may be placed via secure internet, free fax 1800642453, phone 07 46312742 (within Australia), or mail. Overseas students should fax +61 7 46311743, or phone +61 7 46312742. For costs, further details, and internet ordering, use the 'Textbook Search' facility at <http://bookshop.usq.edu.au> click 'Semester', then enter your 'Course Code' (no spaces).

There is no prescribed text for this course at this time, however, recommended reading for this course will be advised.

REFERENCE MATERIALS

Reference materials are materials that, if accessed by students, may improve their knowledge and understanding of the material in the course and enrich their learning experience.

Coates, RM (ed) 1999, *Handbook of reagents for organic synthesis*, Wiley and sons, Chichester ISBN 0471979244, Vol 1-4.

Leach, AR 2002, *Molecular Modelling: Principles and applications*, 2nd edn, Pearson, ISBN 0582382106.

Liska, K 2004, *Drugs and the human body with implications for society*, 7th edn, Pearson, ISBN 0131773216.

STUDENT WORKLOAD REQUIREMENTS

ACTIVITY	HOURS
Examinations	4.00
Laboratory or Practical Classes	30.00
Lectures	26.00
Private Study	70.00
Report Writing	30.00

ASSESSMENT DETAILS

Description	Marks out of	Wtg(%)	Due date
LAB REPORTS	25.00	25.00	01 Mar 2005 (see note 1)
90MIN RESTRICTED TEST QUIZ	25.00	25.00	01 Mar 2005 (see note 2)
2 HR RESTRICTED EXAM	50.00	50.00	END S1 (see note 3)

NOTES

1. Lecturer will advise due dates of the laboratory reports.
2. Lecturer will advise the date of the 90 minute restricted test - Quiz 1 early in the Semester.
3. Examination dates will be available during the Semester. Please refer to the examination timetable when published.

IMPORTANT ASSESSMENT INFORMATION

- 1 Attendance requirements:
It is the students' responsibility to attend and participate appropriately in all activities (such as lectures, tutorials, laboratories and practical work) scheduled for them, and to study all material provided to them or required to be accessed by them to maximise their chance of meeting the objectives of the course and to be informed of course-related activities and administration.
- 2 Requirements for students to complete each assessment item satisfactorily:
To complete the practical reports satisfactorily, students must submit each report for correction no later than one teaching week (normally 7 days) after the completion of the experimental work. To complete each of the assessment items satisfactorily, students must obtain at least 50% of the marks available for each assessment item. To complete the examination satisfactorily, students must obtain at least 50% of the marks available for the examination.
- 3 Penalties for late submission of required work:
If students submit assignments after the due date without prior approval then a penalty of 10% of the total marks available for the assignment will apply for each working day late.
- 4 Requirements for student to be awarded a passing grade in the course:
To be assured of a passing grade, students must submit every laboratory report, achieve 50% of the available marks for laboratory reports, and achieve at least 50% in the test and in the examination.
- 5 Method used to combine assessment results to attain final grade:
The final grades for students will be assigned on the basis of the weighted aggregate of the marks obtained for each of the summative assessment items in the course.
- 6 Examination information:
In a Restricted Examination, candidates are allowed access to specific materials during the examination. The only materials that candidates may use in the restricted examination for this course are: writing materials (non-electronic and free from material which could give the student an unfair advantage in the examination); calculators which cannot hold textual information (students must indicate on their examination paper the make and model of any calculator(s) they use during the examination. With the Examiner's

approval, candidates may, take an appropriate non- electronic translation dictionary into the examination. This will be subject to perusal and, if it is found to contain annotations or markings that could give the candidate an unfair advantage, it may be removed from the candidate's possession until the appropriate disciplinary action is completed.

- 7 Examination period when Deferred/Supplementary examinations will be held:
Any Supplementary work for this course must be submitted by the end of week 5 of the following semester. Any Deferred examinations will be held at a time suitable to both the student and the course but must occur no later than the end of the next semester's exam period.
- 8 University Regulations:
Students should read USQ Regulations 5.1 Definitions, 5.6. Assessment, and 5.10 Academic Misconduct for further information and to avoid actions which might contravene University Regulations. These regulations can be found at the URL <http://www.usq.edu.au/corporateservices/calendar/part5.htm> or in the current USQ Handbook.

ASSESSMENT NOTES

- 9 In order to attend laboratory classes, students must provide and wear appropriate personal protective equipment. This shall include a laboratory coat, closed in shoes, and safety glasses. Such equipment must be approved by supervising staff. Failure to provide and wear the appropriate safety equipment will result in students being excluded from classes.
- 10 The due date for an assignment is the date by which a student must despatch the assignment to the USQ. The onus is on the student to provide proof of the despatch date, if requested by the Examiner. Students must retain a copy of each item submitted for assessment. If requested by the Examiner, students will be required to provide a copy of assignments submitted for assessment purposes. Such copies should be despatched to USQ within 24 hours of receipt of a request being made. In accordance with University's Assignment Extension Policy (Regulation 5.6.1), the examiner of a course may grant an extension of the due date of an assignment in extenuating circumstances.