School of Chemistry

CHEM812: Contemporary Organic Chemistry

Subject Outline
Autumn, 2016
On-Campus
Wollongong

Subject Information
Credit Points: 6
Pre-requisite(s): Nil
Co-requisite(s): Nil
Restrictions: 1193 - International Graduate Certificate in Science (Wollongong); 1197 - Graduate Certificate in Science (Wollongong); 1523 - International Master of Science (Wollongong); 1614 - Master of Science and Management (Wollongong); 1616 - Master of Science (Wollongong); 625 - International Graduate Diploma in Science (Wollongong); 682 - Graduate Diploma in Science (Wollongong)
Contact Hours: 39hr Lecture, 8hr Tutorial, 30hr Practical

Subject Contacts
Subject Coordinator/Lecturer

<table>
<thead>
<tr>
<th>Name</th>
<th>A/Prof Michael Kelso</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Building 18, Room 115</td>
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<td>Telephone</td>
<td>61 2 4221 5085</td>
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<tr>
<td>Email</td>
<td><a href="mailto:michael_kelso@uow.edu.au">michael_kelso@uow.edu.au</a></td>
</tr>
<tr>
<td>Consultation mode and times</td>
<td>Email for appointment</td>
</tr>
</tbody>
</table>

Lecturer/Demonstrator/Tutor

<table>
<thead>
<tr>
<th>Name</th>
<th>Dr Christopher Richardson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Building 18 Room 114</td>
</tr>
<tr>
<td>Telephone</td>
<td>61 2 4221 3254</td>
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<td>Email</td>
<td><a href="mailto:chris_richardson@uow.edu.au">chris_richardson@uow.edu.au</a></td>
</tr>
<tr>
<td>Consultation mode and times</td>
<td>Email for appointment</td>
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<table>
<thead>
<tr>
<th>Name</th>
<th>Dr Danielle Skropeta</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Building 18, Room 127</td>
</tr>
<tr>
<td>Telephone</td>
<td>61 2 4221 4360</td>
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<tr>
<td>Email</td>
<td><a href="mailto:danielle_skropeta@uow.edu.au">danielle_skropeta@uow.edu.au</a></td>
</tr>
<tr>
<td>Consultation mode and times</td>
<td>Email for appointment</td>
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</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Prof Stephen Pyne</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Building 18, Room 121</td>
</tr>
<tr>
<td>Telephone</td>
<td>61 2 4221 3511</td>
</tr>
<tr>
<td>Email</td>
<td><a href="mailto:stephen_pyne@uow.edu.au">stephen_pyne@uow.edu.au</a></td>
</tr>
<tr>
<td>Consultation mode and times</td>
<td>Email for appointment</td>
</tr>
</tbody>
</table>
Student Support and Advice
For general enquiries please contact StudentHub 41:

Location: 41.138B
Telephone: 61 2 4221 3492
Email: smah-students@uow.edu.au
Student Consultation and Communication

University staff receive many emails each day. In order to enable them to respond to your emails appropriately and in a timely fashion, students are asked to observe basic requirements of professional communication:

**Consider what the communication is about**
- Is your question addressed elsewhere (e.g. in the subject outline or, on the eLearning (Moodle) site?
- Is it something that is better discussed in person or by telephone? This may be the case if your query requires a lengthy response or a dialogue in order to address. If so, see consultation times above and/or schedule an appointment.
- Are you addressing your request to the most appropriate person?

**Specific email subject title to enable easy identification of issue**
- Identify the subject code of the subject you are enquiring about (as staff may be involved in more than one subject) put this in the email subject heading. Add a brief, specific query reference after the subject code where appropriate.

**Professional courtesy**
- Address the staff member appropriately by name (and formal title if you do not yet know them).
- Use full words (avoid ‘text-speak’ abbreviations), correct grammar and correct spelling.
- Be respectful and courteous.
- Allow 3 – 4 working days for a response before following up. If the matter is legitimately urgent, you may wish to try telephoning the staff member (and leaving a voicemail message if necessary) or inquiring at the School Office.
- Please ensure that you include your full name and student number and identify your practical class or tutorial group in your email so that staff know who they are communicating with and can follow-up personally where appropriate.
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Section A: General Information

Subject Learning Outcomes

On successful completion of this subject, students will be able to:

1. Identify the common organic functional groups from a combination of chemical and spectroscopic techniques;

2. Identify the structure of an unknown organic compounds using NMR, IR and MS spectroscopic techniques;

3. Understand and draw reaction mechanisms for organic reactions, including functional group transformations, electrophilic aromatic substitution and nucleophilic substitution reactions and C-C bond-forming reactions;

4. Synthesise simple organic compounds in the laboratory and be familiar with the theory of modern organic synthetic methods

Subject Description

This subject will solidify and extend students understanding of the theory or modern organic chemistry, as well as their grasp of experimental techniques used to synthesise, purify and structurally characterise organic compounds. Topics covered will include: mechanisms of nucleophilic substitution and elimination reactions; synthesis and reactions of carboxylic acids (and derivatives), esters, amides, aldehydes, ketones, alcohols, phenols, ethers and amines; advanced electrophilic and nucleophilic aromatic substitution; oxidation and reduction reactions; modern synthetic methods (e.g. alkylation/acylation of ketones and ester enolates, and the aldol reaction); application of infra-red spectroscopy, mass spectrometry and NMR spectroscopy to organic structure determination; stereochemistry.

eLearning Space (Moodle)

This subject has materials and activities available via eLearning. To access eLearning you must have a UOW user account name and password, and be enrolled in the subject. eLearning is accessed via SOLS (student online services). Log on to SOLS and then click on the eLearning link in the menu column. For information regarding the eLearning spaces please use the following link:
http://uowblogs.com/moodlelab/files/2013/05/Moodle_StudentGuide-1petpo7.pdf

Lecture, Tutorial, Laboratory Times

All timetable information is subject to variation. Check latest timetabling information on the 'Current Student' webpage on UOW website or log into SOLS to view your personal timetable prior to attending classes.


Timetable information can be accessed from

Key University Dates can be accessed from
Readings, References and Materials

Textbooks
The following texts are recommended for students enrolled in this class.


Prescribed Readings (includes eReadings)
Nil

Materials
Students must purchase a lab coat and safety glasses in order to participate in the laboratory component of this course. These are available from the UOW bookshop.

Recommended Readings
Nil

Recent Changes to this Subject
Nil

Laboratory Safety Guidelines
The rules below are general rules that are required in laboratories.

- Before commencing your project you are to ensure that you understand specific procedures for the laboratory in which you work.
- You will need to fill out a risk assessment form before commencing any experiments (confer with your laboratory supervisor).
- Never use any equipment or attempt any experiment without checking the safety implications with your laboratory supervisor or experienced delegated laboratory worker.
- Undergraduate students are not permitted to work after hours unless there is appropriate approval and supervision.
<table>
<thead>
<tr>
<th>Week</th>
<th>Week Commencing</th>
<th>Lectures/Tutorials</th>
<th>Lab Classes</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>29/02/2016</td>
<td>Mon 8:30-9:30 35.G45, Wed 12:30-1:30 35.G45, Thurs 12:30-1:30 35.G45</td>
<td>No class</td>
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<tr>
<td>2</td>
<td>07/03/2016</td>
<td>Mon 8:30-9:30 35.G45, Wed 12:30-1:30 35.G45, Thurs 12:30-1:30 35.G45</td>
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<td>3</td>
<td>14/03/2016</td>
<td>Mon 8:30-9:30 35.G45, Wed 12:30-1:30 35.G45, Thurs 12:30-1:30 35.G45</td>
<td>Wetlab 43.201</td>
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<td>4</td>
<td>21/03/2016</td>
<td>Mon 8:30-9:30 35.G45, Wed 12:30-1:30 35.G45, Thurs 12:30-1:30 35.G45</td>
<td>Wetlab 43.201</td>
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<tr>
<td>5</td>
<td>28/03/2016</td>
<td>Mon 8:30-9:30 35.G45, Wed 12:30-1:30 35.G45, Thurs 12:30-1:30 35.G45</td>
<td>Drylab 43.201</td>
</tr>
<tr>
<td>6</td>
<td>04/04/2016</td>
<td>Mon 8:30-9:30 35.G45, Wed 12:30-1:30 35.G45, Thurs 12:30-1:30 35.G45</td>
<td>Drylab 43.201</td>
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<tr>
<td>7</td>
<td>11/04/2016</td>
<td>Mon 8:30-9:30 35.G45, Wed 12:30-1:30 35.G45, Thurs 12:30-1:30 35.G45</td>
<td>No class</td>
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<tr>
<td>8</td>
<td>18/04/2016</td>
<td>Mon 8:30-9:30 35.G45, Wed 12:30-1:30 35.G45, Thurs 12:30-1:30 35.G45</td>
<td>Wetlab 43.201</td>
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<tr>
<td></td>
<td>Mid Session Recess 25th April-29th April</td>
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<tr>
<td>9</td>
<td>02/05/2016</td>
<td>Mon 8:30-9:30 35.G45, Wed 12:30-1:30 35.G45, Thurs 12:30-1:30 35.G45</td>
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<tr>
<td>10</td>
<td>09/05/2016</td>
<td>Mon 8:30-9:30 35.G45, Wed 12:30-1:30 35.G45, Thurs 12:30-1:30 35.G45</td>
<td>Wetlab 43.201</td>
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<tr>
<td>11</td>
<td>16/05/2016</td>
<td>Mon 8:30-9:30 35.G45, Wed 12:30-1:30 35.G45, Thurs 12:30-1:30 35.G45</td>
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<tr>
<td>12</td>
<td>23/05/2016</td>
<td>Mon 8:30-9:30 35.G45, Wed 12:30-1:30 35.G45, Thurs 12:30-1:30 35.G45</td>
<td>Drylab 43.201</td>
</tr>
<tr>
<td>13</td>
<td>30/05/2016</td>
<td>Mon 8:30-9:30 35.G45, Wed 12:30-1:30 35.G45, Thurs 12:30-1:30 35.G45</td>
<td>No class</td>
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</table>

Study Recess 6th June-10th June

UOW Exam Period 11th June-23 June

*The above timetable should be used as a guide only, as it is subject to change. Students will be advised of any changes as they become known.

**List of Topics Covered**

The following are examples of the topics to be covered in this course. This is not an exhaustive list and will be subject to change.

- Stereochemistry, Functional Group Chemistry I (addition/elimination/substitution reactions, aldehydes, ketones, ethers)
- Spectroscopy (infrared, mass spectrometry, $^1$H and $^{13}$C NMR)
- Functional Group Chemistry II (acids derivatives, amines),
- Organic synthesis (carbon-carbon bond forming reactions)
- Aromatic chemistry.
## Section B: Assessment

### Assessment Summary

<table>
<thead>
<tr>
<th>Assessment Item</th>
<th>Form of Assessment</th>
<th>Due Date</th>
<th>Return/Feedback Due Dates</th>
<th>Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment 1</td>
<td>Quiz</td>
<td>See Subject Manual</td>
<td>See Subject Manual</td>
<td>10%</td>
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<tr>
<td>Assessment 2</td>
<td>Moodle Assignments</td>
<td>See Subject Manual</td>
<td>See Subject Manual</td>
<td>15%</td>
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<tr>
<td>Assessment 3</td>
<td>Practical Work (Wet and dry labs)</td>
<td>See Subject Manual</td>
<td>See Subject Manual</td>
<td>30%</td>
</tr>
<tr>
<td>Assessment 4</td>
<td>Final Examination</td>
<td>See exam timetable</td>
<td>N/A</td>
<td>45%</td>
</tr>
</tbody>
</table>

| Total Marks     | 100%               |

### Details of Assessment Tasks

Assessment tasks will be marked using explicit criteria that will be provided to students prior to submission.

#### Assessment 1

**Quiz**

- **Due date**: Week 7
- **Weighting**: 10%
- **Submission**: Exam papers and answers must be submitted at the conclusion of the exam.
- **Type of Collaboration**: Individual Assessment
- **Length**: 50 mins
- **Details**: Exam covers lecture and lab content from Weeks 1-6
- **Style and format**: Short answer questions
- **Subject Learning Outcomes**: 1-4
- **Marking Criteria**: Exam mark /10

#### Assessment 2

**Moodle Assignments**

- **Due date**: TBA – See Subject Manual available from the UOW Bookshop in Week 1
- **Weighting**: 15%
- **Submission**: Online submission via Moodle
- **Type of Collaboration**: Individual Assessment
- **Length**: 5 x assignments, 10 Qs each
- **Details**: Questions from lecture content from the weeks prior to assignment due dates
- **Style and format**: Multiple choice
- **Subject Learning Outcomes**: 1-4
- **Marking Criteria**: Answers marked correct/incorrect and mark /10 awarded for each assignment
Assessment 3  | Practical Work (Wet and Dry Labs)
---|---
**Due date** | See Subject Manual available from the UOW Bookshop in Week 1
**Weighting** | 30%
**Submission** | Submit a hardcopy to the StudentHub 41
**Type of Collaboration** | Individual Assessment
**Length** | Standard lab report length ~10 pages
**Details** | 4 x Wetlab and 2 x Drylab reports
**Style and format** | Formal scientific reports
**Subject Learning Outcomes** | Subject Learning Objectives 1-4
**Marking Criteria** | Reports marked /10

Assessment 4  | Final Examination
---|---
**Due date** | TBA – see examination timetable later in the session
**Weighting** | 45%
**Submission** | For examinations – Exam papers and answers must be submitted at the conclusion of the exam.
**Type of Collaboration** | Individual Assessment
**Length** | 3 hours
**Details** | Covers content from the whole lecture/tutorial course
**Style and format** | Short answer
**Subject Learning Outcomes** | Subject Learning Objectives 1-4
**Marking Criteria** | Exams marked /90 and converted to overall /45

Minimum Requirements for a Pass in this Subject
To receive a clear pass in this subject a total mark of 50% or more must be achieved. In addition, failure to meet any of the minimum performance requirements is grounds for awarding a Technical Fail (TF) in the subject, even where total marks accumulated are greater than 50%.

The minimum performance requirements for this subject are:
- Satisfactory completion of at least 85% of the wet and dry labs.
- Achieve a mark ≥ 45% on the final examination

Minimum Student Attendance and Participation
Student attendance at Wet and Dry lab sessions is compulsory and students must attend at least 85% of classes. Absences will require submission of an application for Academic Consideration via SOLS and the presentation of suitable documentation, for example a Medical Certificate, to Student Central as soon as practical. For further details about applying for academic consideration visit the Student Central webpage: [http://www.uow.edu.au/student/central/academicconsideration/index.html](http://www.uow.edu.au/student/central/academicconsideration/index.html)

Scaling
Scaling will not occur in this subject.

Late Submission
Late submission of an assessment task without an approved extension of the deadline is not acceptable. If you are unable to submit an assessment due to extenuating circumstances (e.g. medical grounds or compassionate grounds), you can make an application of academic consideration. Not all circumstances qualify for academic consideration. For further details about applying for academic consideration visit the Student Central webpage: [http://www.uow.edu.au/student/central/academicconsideration/index.html](http://www.uow.edu.au/student/central/academicconsideration/index.html)
Late Submission Penalty – at 10%
Late submission of an assessment task without an approved extension of the deadline is not acceptable. Marks will be deducted for late submission at the rate of 10% of the total possible marks for that particular assessment task per day. This means that if a piece of work is marked out of 100, then the late penalty will be 10 marks per day (10% of 100 possible marks per day). The formula for calculating the late penalty is the total possible marks x 0.10 x number of days late. For the purposes of this policy a weekend (Saturday and Sunday) will be regarded as two days.

For example:
- Student A submits an assessment which is marked out of 100. The assessment is submitted 4 days late. This means that a late penalty of 40 marks will apply (100 x 0.10 x 4). The assessment is marked as per normal out of 100 and is given a mark of 85/100, and then the late penalty is applied. The result is that the student receives a final mark of 45/100 for the assessment (85 (original mark) – 40 marks (late penalty) = 45/100 (final mark)).
- Student B submits a report which is marked out of 20. The report is submitted three days late. This means that a late penalty of 6 marks will apply ((20 x 0.10 x 3). The report is marked as per normal out of 20 and is given a mark of 15/20, and then the late penalty is applied. The result is that the student receives a final mark of 9/20 for the report (15 (original mark) – 6 marks (late penalty) = 9/20 (final mark)).

No marks will be awarded for work submitted after the assessment has been returned to the students (except where a particular assessment task is undertaken by students at different times throughout the session, but where the assessment is based on experiments or case studies specific to a student). Notwithstanding this, students must complete all assessment tasks to a satisfactory standard and submit them, regardless of lateness or loss of marks, where submission is a condition of satisfactorily completing the subject.

System of Referencing Used for Written Work
The Author-Date (Harvard) referencing system should, unless otherwise specified for a particular assessment (check Details of Assessment Tasks), be utilised. A summary of the Harvard system can be accessed on the Library website at: http://public01.library.uow.edu.au/refcite/style-guides/html/

Use of Internet Sources
Students are able to use the Internet to access the most current information on relevant topics and information. Internet sources should only be used after careful critical analysis of the currency of the information, the role and standing of the sponsoring institution, reputation and credentials of the author, the clarity of the information and the extent to which the information can be supported or ratified by other authoritative sources.

Plagiarism
The full policy on Academic Integrity and Plagiarism is found in the Policy Directory on the UOW website.

“The University’s Academic Integrity and Plagiarism Policy, Faculty Handbooks and subject guides clearly set out the University’s expectation that students submit only their own original work for assessment and avoid plagiarising the work of others or cheating. Re-using any of your own work (either in part or in full) which you have submitted previously for assessment is not permitted without appropriate acknowledgement. Plagiarism can be detected and has led to students being expelled from the University.

The use by students of any website that provides access to essays or other assessment items (sometimes marketed as ‘resources’), is extremely unwise. Students who provide an assessment item (or provide access to an assessment item) to others, either directly or indirectly (for example by uploading an assessment item to a website) are considered by the university to be intentionally or recklessly helping other students to cheat. This is considered academic misconduct and students place themselves at risk of being expelled from the University.”
Submission of Assessments

Assessments submitted at StudentHub 41 must have a SATS (Student Assessment Tracking System) coversheet attached to the front of the assessment. Instructions for generating a coversheet can be found on the StudentHub 41 web page: http://smah.uow.edu.au/current-students/UOW151958.html

For an assessment to be successfully submitted at StudentHub 41 please note the following:

- The coversheet must be signed and dated.
- The assessment must have the correct coversheet i.e. the correct subject code and tutorial group (if applicable).
- A legible barcode with all numbers and digits below e.g. UOW20121007656.
- Assessments must be submitted by 4:00pm on the due date.

If an assessment is submitted to StudentHub 41 without any of the above we will contact you through your student email address and advise that you need to return to StudentHub 41 with the correct coversheet. Your assessment won’t be considered submitted until the correct coversheet is attached. This might mean that your assessment is submitted late.

An email receipt will be issued on the same day as submission of assessments and students are required to retain this receipt until they have received the final mark for that assessment task. It is your responsibility to contact StudentHub 41 if you have not received this receipt by the following business day. The receipt is proof of submission of assessments and students will be required to produce this in the event that an assessment task is considered to be lost. Students are also expected to keep a copy of all their submitted assessments in the event that re-submission is required. SATS Group Assessment Coversheets are printed by the lead member of the group and subsequent names can be added in the SATS student interface before printing. All members of the group must sign the printed SATS Group Assessment Coversheet before submitting the assessment.

Note that if assessments are submitted in the after-hours slot at StudentHub 41 it will be scanned into SATS the following business day. Assessments submitted via post will be scanned into SATS on the day of delivery. Any assessments received without the correct assessment coversheet attached will not be accepted by SATS. It is the student’s responsibility to ensure that the correct assessment coversheet is submitted with their assessment.

Students may post their assessments to:

StudentHub 41 (41.138B)
University of Wollongong
Wollongong NSW 2522

Assessments will be considered submitted on the date of postage. It is the student’s responsibility to ensure they have evidence of their submission date if it arrives at the office after due date.

Distance students who would like to have marked assessments returned must include a stamped self-addressed envelope with the posted assessment.

Assessment Return

Students will be notified when they can collect or view their marked assessment. In accordance with University Policy marked assessments will usually only be held for 21 days after the declaration of marks for that assessment.
Section C: General Advice

Students should refer to the Faculty of Science, Medicine and Health website for information on policies, learning and support services and other general advice.

University Policies

Students should be familiar with the following University policies:

a. Code of Practice – Teaching and Assessment

b. Student Charter

c. Academic Integrity and Plagiarism Policy

d. Student Academic Consideration Policy

e. Course Progress Policy

f. Graduate Qualities Policy

g. Academic Complaints Policy (Coursework and Honours Students)

h. Policy and Guidelines on Non-Discriminatory Language Practice and Presentation

i. Workplace Health and Safety, where relevant

j. Student Conduct Rules and accompanying Procedures or Research Misconduct Policy for research students

Student Support Services and Facilities

Students can access information on student support services and facilities at the following link. This includes information on “Academic Support”, “Starting at University,” “Help at University” as well as information and support on “Career’s and Jobs”. http://www.uow.edu.au/student/services/index.html

Student Etiquette

Guidelines on the use of email to contact teaching staff, mobile phone use in class and information on the university guide to eLearning ‘Netiquette’ can be found at http://www.uow.edu.au/student/elearning/netiquette/index.html

Version Control Table

<table>
<thead>
<tr>
<th>Version Control</th>
<th>Release Date</th>
<th>Author/Reviewer</th>
<th>Approved By</th>
<th>Amendment</th>
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<tbody>
<tr>
<td>1</td>
<td>20151124</td>
<td>Dr Michael Kelso – Subject Coordinator</td>
<td>Mrs Sonia Losinno – ADE Nomine</td>
<td>Final CHEM812 Autumn 2016 Subject Outline</td>
</tr>
</tbody>
</table>