Course Outline

Code: CHM202
Title: Organic Chemistry

School of: Science & Engineering
Teaching Session: Semester 2
Year: 2020
Course Coordinator: Dr Peter Brooks  Tel: (07) 5430 2828  Email: pbrooks@usc.edu.au
Course Moderator: Dr Neil Tindale

Please go to the USC website for up to date information on the teaching sessions and campuses where this course is usually offered.

1. What is this course about?

1.1 Description

Organic Chemistry is the study of covalently bonded molecules with a carbon backbone. Organic molecules are the vast majority of compounds making up living systems. This includes DNA, RNA, carbohydrates, lipids, proteins, drugs and poisons. This course introduces you to the structure and reactivity of organic molecules in sufficient detail to better understand biochemistry as well as predict reactivity and synthetic pathways. The practical component demonstrates hands on synthesis, purification and identification of organic compounds.

1.2 Course topics

The course covers a broad foundation in organic chemistry, including covalent bonding, stereochemistry, reaction pathways, reaction of functional groups, synthetic strategies and Infrared spectroscopy.

2. What level is this course?

200 level Developing - Applying broad and/or deep knowledge and skills to new contexts. May require pre-requisites and introductory level knowledge/skills. Normally undertaken in the 2nd or 3rd year of an undergraduate program.

3. Unit value

12 units
4. **How does this course contribute to my learning?**

<table>
<thead>
<tr>
<th>Specific Learning Outcomes</th>
<th>Assessment Tasks</th>
<th>Graduate Qualities or Professional Standards mapping</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Plan and conduct laboratory experiments</strong></td>
<td>1. Practical and Report component</td>
<td>Empowered.</td>
</tr>
<tr>
<td><strong>Analyse and assign structure from Infrared spectra</strong></td>
<td>1. Practical and Report component</td>
<td>Empowered.</td>
</tr>
</tbody>
</table>
| **Describe, explain and apply organic chemistry theory including: bonding and reactivity in organic molecules** | 1. Practical and Report component  
2. Organic bonding and reactivity Exam  
3. Final Exam | Knowledgeable. |

5. **Am I eligible to enrol in this course?**

Refer to the [USC Glossary of terms](#) for definitions of “pre-requisites, co-requisites and anti-requisites”.

5.1 **Enrolment restrictions**

Nil

5.2 **Pre-requisites**

SCI105 Chemistry or SCI505 Chemistry

5.3 **Co-requisites**

Nil

5.4 **Anti-requisites**

CHM502 Organic Chemistry

5.5 **Specific assumed prior knowledge and skills (where applicable)**

Students should have a sound knowledge of general chemistry.

6. **How am I going to be assessed?**

6.1 **Grading scale**

Standard – High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL)

6.2 **Details of early feedback on progress**

In week 4, your tutorial participation and progress on basic Organic bonding concepts will be informally assessed, and the opportunity given for student feedback.
6.3 Assessment tasks

<table>
<thead>
<tr>
<th>Task No.</th>
<th>Assessment Tasks</th>
<th>Individual or Group</th>
<th>Weighting %</th>
<th>What is the duration/length?</th>
<th>When should I submit?</th>
<th>Where should I submit it?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Three IR and practical reports</td>
<td>Individual</td>
<td>30%</td>
<td>Three times 1000 words</td>
<td>IR spectra in week 6, Reports one week after completing the practical</td>
<td>To the coordinator</td>
</tr>
<tr>
<td>2</td>
<td>Organic bonding and reactivity exam</td>
<td>Individual</td>
<td>30%</td>
<td>1 hour/750 words</td>
<td>Week 8 tutorial or online</td>
<td>In class or online</td>
</tr>
<tr>
<td>3</td>
<td>Final Exam</td>
<td>Individual</td>
<td>40%</td>
<td>2 hours/1500 words</td>
<td>Central examination period, online</td>
<td>TBA</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100%</td>
<td></td>
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</tbody>
</table>

Assessment Task 1: IR Spectroscopy and Practical Component

**Goal:** The practical skills and knowledge of Infrared spectroscopy are critical in Organic Chemistry. The practical component is designed to develop your advancing knowledge on planning and safely conducting organic experiments, and writing scientific reports.

**Product:** Three written reports, each averaging 1000 words

**Format:** Standard Scientific Report Format of Title, Abstract, Experimental Procedure, Discussion, References for reports, and completion of Functional Groups Table for IR.

**Criteria:**
- Demonstration of organic theory and knowledge
- Accurate collection and analysis of experimental data
- Clear and concise scientific communication

Assessment Task 2: Organic bonding and reactivity exam

**Goal:** This exam will focus on the application of organic bonding and reactivity.

**Product:** 1 hour written exam, either online or in tutorial.

**Format:** Individual written exam covering the first six weeks of lectures

**Criteria:** Correct answering of questions on organic bonding and reactivity concepts

Assessment Task 3: Final Exam

**Goal:** Demonstrate and apply knowledge to organic chemistry problems

**Product:** Written 2 hour formal exam, either online or USC venue.

**Format:** Individual examination during central exam period

**Criteria:** Correct answering of questions in organic bonding, reactivity and synthesis

7. What are the course activities?

7.1 Directed study hours

The directed study hours listed here are a portion of the workload for this course. A 12 unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Directed study hours may vary by location. Student workload is calculated at 12.5 learning hours per one unit.

This course will be delivered via technology-enabled learning and teaching. All lectures will remain in this mode for semester 2 2020. When government guidelines allow, students that elect on-campus study via the class selection process will be advised when on campus tutorials and practical sessions will resume.
### Course Outline: CHM202 Organic Chemistry

<table>
<thead>
<tr>
<th>Location: Specific Campus(es) or online:</th>
<th>Directed study hours for location:</th>
</tr>
</thead>
<tbody>
<tr>
<td>USC Sunshine Coast</td>
<td>Lecture: 2-hr per week</td>
</tr>
<tr>
<td></td>
<td>Tutorial: 1-hr per fortnight</td>
</tr>
<tr>
<td></td>
<td>Practical or online demonstration: 3-hr per fortnight</td>
</tr>
</tbody>
</table>
7.2 Course content

<table>
<thead>
<tr>
<th>Week / Module</th>
<th>What key concepts/content will I learn?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Molecular Bonding &amp; Nomenclature: The Organic Language</td>
</tr>
<tr>
<td>2</td>
<td>Stereochemistry</td>
</tr>
<tr>
<td>3</td>
<td>Infrared Spectroscopy</td>
</tr>
<tr>
<td>4-5</td>
<td>Substitution and Elimination Reactions</td>
</tr>
<tr>
<td>6-7</td>
<td>Alkyl halides, Alcohols and Amines</td>
</tr>
<tr>
<td>8</td>
<td>Alkenes</td>
</tr>
<tr>
<td>9</td>
<td>Aromatics</td>
</tr>
<tr>
<td>10</td>
<td>Aldehydes and Ketones</td>
</tr>
<tr>
<td>11</td>
<td>Enolate Anions</td>
</tr>
<tr>
<td>12</td>
<td>Enolate Anions</td>
</tr>
<tr>
<td>13</td>
<td>Semester Review</td>
</tr>
</tbody>
</table>

Please note - course content is subject to variation.

8. What resources do I need to undertake this course?

Please note that course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Blackboard site. Please log in as soon as possible.

8.1 Prescribed text(s)

<table>
<thead>
<tr>
<th>Author</th>
<th>Year</th>
<th>Title</th>
<th>Publisher</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bruice, Paula Yurkanis</td>
<td>2017</td>
<td>Organic Chemistry</td>
<td>Pearson</td>
</tr>
</tbody>
</table>

8.2 Specific requirements

Safety glasses, laboratory coat and covered shoes must be brought to laboratory classes.

9. Risk management

There is minimal health and safety risk in this course for most students. Students that suffer asthma should contact the course coordinator before enrolling.

It is your responsibility as a student to review course material, search online, discuss with lecturers and peers, and understand the health and safety risks associated with your specific course of study. It is also your responsibility to familiarise yourself with the University’s general health and safety principles by reviewing the online Health Safety and Wellbeing training module for students, and following the instructions of the University staff.

10. What administrative information is relevant to this course?

10.1 Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud, including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work
to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Blackboard, are electronically checked through SafeAssign. This software allows for text comparisons to be made between your submitted assessment item and all other work that SafeAssign has access to.

10.2 Assessment: Additional requirements

Eligibility for Supplementary Assessment

Your eligibility for supplementary assessment in a course is dependent on the following conditions applying:

a) The final mark is in the percentage range 47% to 49.4%
b) The course is graded using the Standard Grading scale
c) You have not failed an assessment task in the course due to academic misconduct

10.3 Assessment: Submission penalties

Late submission of assessment tasks will be penalised at the following maximum rate:

- 5% (of the assessment task’s identified value) per day for the first two days from the date identified as the due date for the assessment task.
- 10% (of the assessment task’s identified value) for the third day
- 20% (of the assessment task’s identified value) for the fourth day and subsequent days up to and including seven days from the date identified as the due date for the assessment task.
- A result of zero is awarded for an assessment task submitted after seven days from the date identified as the due date for the assessment task.

Weekdays and weekends are included in the calculation of days late.

To request an extension, you must contact your Course Coordinator and supply the required documentation to negotiate an outcome.

10.4 Study help

In the first instance, you should contact your tutor, then the Course Coordinator. Additional assistance is provided to all students through Academic Skills Advisers. To book an appointment or find a drop-in session go to Student Hub.

Contact Student Central for further assistance: +61 7 5430 2890 or studentcentral@usc.edu.au.

10.5 Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Administration of Central Examinations
- Deferred Examinations
- Student Academic Misconduct
- Students with a Disability

Visit the USC website:
http://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching
10.6 **General Enquiries**

In person:

- **USC Sunshine Coast** - Student Central, Ground Floor, Building C, 90 Sippy Downs Drive, Sippy Downs
- **USC South Bank** - Student Central, Building A4 (SW1), 52 Merivale Street, South Brisbane
- **USC Gympie** - Student Central, 71 Cartwright Road, Gympie
- **USC Fraser Coast** - Student Central, Student Central, Building A, 161 Old Maryborough Rd, Hervey Bay
- **USC Moreton Bay** - Service Centre, Building A – Ground Floor, 1 Moreton Bay Parade, Petrie
- **USC Caboolture** - Student Central, Level 1 Building J, Cnr Manley and Tallon Street, Caboolture

Tel: +61 7 5430 2890

Email: studentcentral@usc.edu.au