Organic Chemistry II

Class code
CHEM-UA 9226 – 001 (Lec)
CHEM-UA 9226 – 002 (Lab)
CHEM-UA 9226 – 003 (Lab)
CHEM-UA 9226 – 004 (Rec)
CHEM-UA 9226 – 005 (Rec)

Instructors Details
Dr Andrew Try
andrew.try@nyu.edu
Consultations by Appointment
Please allow at least 24 hours for your instructors to respond to your emails

Class Details
Spring 2017

Organic Chemistry II
Monday 9:00 – 12:00pm (Lectures)
January 30 to May 8
Auditorium
NYU Sydney Academic Centre

Monday 1:00 – 2:00pm (Recitations – Section 004, from Week 2)
February 6 to May 8
Auditorium
NYU Sydney Academic Centre

Monday 3:30 – 4:30pm (Recitations – Section 005, from Week 2)
February 6 to May 8
Auditorium
NYU Sydney Academic Centre

Tuesday 9:00am – 1:00pm (Lab, Section 002)
January 31 to May 2
UTS Science Lab CB04.4.521
Building 4, 745 Harris Street, Ultimo, NSW 2007

Tuesday 2:00 – 6:00pm (Lab, Section 003)
January 31 to May 2
UTS Science Lab CB04.4.521
Building 4, 745 Harris Street, Ultimo, NSW 2007
Prerequisites
Organic Chemistry I

Class Description
The aim of the course is to introduce advanced concepts in organic chemistry with particular emphasis on aromatic and carbonyl systems. Some simple aspects of biochemistry including carbohydrates will be discussed. The importance of spectroscopic techniques in organic chemistry will be emphasised.

The aim of the labs is to acquire the practical skills of Organic Chemistry and to become familiar with organic laboratory procedures and techniques.

Assessment Components
Quizzes 10% of final grade: There will be 10 quizzes given in weeks denoted in the schedule. The quiz questions will come primarily from the subject matter discussed in the class.

Two Progress Examinations, 15% each (1hr each, Week 5 and Week 12)

Final examination 35% of final grade. (Exam Week: Mon 16 May 9:00-11:00am)

Weekly laboratory reports will be worth 25% of the course grade: Lab report for each experiment should have to be submitted a week after the experiment is performed.

Failure to submit or fulfill any required course component will result in failure of the class.

For this course your total numerical score, calculated from the components listed above, is converted to a letter grade without rounding.

Assessment Expectations
Grade A: Excellent work showing a thorough knowledge and understanding of the topics, with excellent use of scientific language, detailed analysis and clear logical explanations, showing insight, independent, original thought and reasoning.

Grade B: Good work with good general knowledge and understanding of the topics, accurate use of scientific language, good general analysis and coherent explanations showing some independent reasoning, reading and research.

Grade C: Satisfactory work, broadly correct both factually and analytically, with some explanation and reasoning: the work will typically demonstrate a basic understanding of the topic.

Grade D: Passable work, showing a general, superficial knowledge and understanding of the topic, lacking satisfactory use of scientific language or adequate analysis.

Grade F: Unsatisfactory work in all criteria. The minimum requirements for the course have not been met.
Grade
Conversions
For this course your total numerical score, calculated from the components listed above, correspond to the following letter grades:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Score Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90 to 100</td>
</tr>
<tr>
<td>A-</td>
<td>86 to &lt; 90</td>
</tr>
<tr>
<td>B+</td>
<td>82 to &lt; 86</td>
</tr>
<tr>
<td>B</td>
<td>72 to &lt; 82</td>
</tr>
<tr>
<td>B-</td>
<td>68 to &lt; 72</td>
</tr>
<tr>
<td>C+</td>
<td>64 to &lt; 68</td>
</tr>
<tr>
<td>C</td>
<td>54 to &lt; 64</td>
</tr>
<tr>
<td>C-</td>
<td>50 to &lt; 54</td>
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<tr>
<td>D+</td>
<td>45 to &lt; 50</td>
</tr>
<tr>
<td>D</td>
<td>40 to &lt; 45</td>
</tr>
<tr>
<td>F</td>
<td>0 to &lt; 40</td>
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</tbody>
</table>

Submission of Work
Should work be submitted as a hard copy, or electronically?
Unless otherwise specified, all written work must be submitted as a hard copy. The majority of written assignments must also be submitted electronically via NYU Classes. All in-class presentations must be completed during class time.

Who may submit a student’s work?
Each student’s assigned work must be handed in personally by that student. The student may not nominate another person to act on his/her behalf.

When and where should the work be submitted?
The hard copy of any written work must be submitted to the instructor at the beginning of class on the date the work is due. If the assignment due date falls outside of class time, work must be submitted to the Staff Member on duty in Room 2.04 during prescribed Office Hours (11:30am-12:30pm and 2:30-3:30pm Mon-Thu), or by appointment with the Academic Programs Coordinator. Each submitted item of work received in Room 2.04 will be date and time stamped in the presence of the student. Work submitted in Room 2.04 will not be considered “received” unless formally stamped.

What is the Process for Late Submission of Work?
After the due date, work may only be submitted under the following conditions:

- Late work, even if an extension has been granted, must be submitted in person by appointment with the Academic Programs Coordinator. Each submitted item of work must be date and time stamped in order to be considered “received”.

- Work submitted after the submission time without an agreed extension receives a penalty of 2 points on the 100-point scale (for the assignment) for each day the work is late. Written work submitted beyond five weekdays after the submission date without an agreed extension receives a mark of zero, and the student is not entitled to feedback for that piece of work.
• Because failure to submit or fulfil any required course component will result in failure of the course, it is crucial for students to submit every assignment even when it will receive a mark of zero. Early departure from the program therefore places the student at risk of failing the course.

Plagiarism Policy

The academic standards of New York University apply to all coursework at NYU Sydney. NYU Sydney policies are in accordance with New York University’s plagiarism policy. The presentation of another person’s words, ideas, judgment, images or data as though they were your own, whether intentionally or unintentionally, constitutes an act of plagiarism.

It is a serious academic offense to use the work of others (written, printed or in any other form) without acknowledgement. Cases of plagiarism are not dealt with by your instructor. They are referred to the Director, who will determine the appropriate penalty (up to and including failure in the course as a whole) taking into account the codes of conduct and academic standards for NYU’s various schools and colleges.

Attendance Policy

Study abroad at Global Academic Centres is an academically intensive and immersive experience, in which students from a wide range of backgrounds exchange ideas in discussion-based seminars. Learning in such an environment depends on the active participation of all students. Since classes typically meet once or twice a week, even a single absence can cause a student to miss a significant portion of a course. To ensure the integrity of this academic experience, class attendance at the centres is mandatory, and unexcused absences will affect students’ semester grades. The class roster will be marked at the beginning of class and anyone who arrives after this time will be considered absent. Students are responsible for making up any work missed due to absence.

For courses that meet once a week, one unexcused absence will be penalised by a two percent deduction from the student’s final course grade. For courses that meet two or more times a week, the same penalty will apply to two unexcused absences. Repeated absences in a course may result in failure.

Faculty cannot excuse an absence. Requests for absences to be excused must be directed to the Academic Programs Coordinator. Students must provide appropriate documentation for their absence. In the case of illness, students must contact the Academic Programs Coordinator on the day of absence. They must provide medical documentation to Academic Programs Coordinator within three days of the absence in order to be medically excused. The note must include a medical judgement indicating that the student was unfit to attend class/work on the specific day or dates of the absence. Faculty will be informed of excused absences by the Academic Programs staff.
This is a seminar subject and requires the active participation of all students. It also requires engaged discussion, including listening to and respecting other points of view. Your behaviour in class should respect your classmates’ desire to learn. It is important for you to focus your full attention on the class, for the entire class period.

- Arrive to class on time.
- Once you are in class, you are expected to stay until class ends. Leaving to make or take phone calls, to meet with classmates, or to go to an interview, is not acceptable behaviour.
- Phones, digital music players, and any other communications or sound devices are not to be used during class. That means no phone calls, no texting, no social media, no email, and no internet browsing at any time during class.
- Laptop computers and tablets are not to be used during class except in rare instances for specific class-related activity expressly approved by your instructor.
- The only material you should be reading in class is material assigned for that class. Reading anything else, such as newspapers or magazines, or doing work from another class, is not acceptable.
- Class may not be recorded in any fashion – audio, video, or otherwise – without permission in writing from the instructor.

NYU is committed to building a culture that respects and embraces diversity, inclusion, and equity, believing that these values – in all their facets – are, as President Andrew Hamilton has said, “...not only important to cherish for their own sake, but because they are also vital for advancing knowledge, sparking innovation, and creating sustainable communities.” At NYU Sydney we are committed to creating a learning environment that:

- fosters intellectual inquiry, research, and artistic practices that respectfully and rigorously take account of a wide range of opinions, perspectives, and experiences; and
- promotes an inclusive community in which diversity is valued and every member feels they have a rightful place, is welcome and respected, and is supported in their endeavours.

Students observing a religious holiday during regularly scheduled class time are entitled to miss class without any penalty to their grade. This is for the holiday only and does not include the days of travel that may come before and/or after the holiday. Students must notify their professor and the Academic Programs Coordinator in writing via email one week in advance before being absent for this purpose.

Students with disabilities who believe that they may need accommodations in a class are encouraged to contact the Moses Centre for Students with Disabilities at (212) 998-4980 as soon as possible to better ensure that such accommodations are implemented in a timely fashion. For more information, see Study Away and Disability.
Required Texts

It is a course expectation that you have done the required reading and have prepared sufficiently to discuss them in class.


Additional Required Equipment

- Laboratory coats and obligatory safety goggles (these can be borrowed from NYU Sydney)
- Lab notebooks with detachable pages.
<table>
<thead>
<tr>
<th>Week (Lec/Rec + Lab)</th>
<th>Lecture/Recitation Topic</th>
<th>Laboratory</th>
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<tbody>
<tr>
<td>Week 1&lt;br&gt;Mon 30 Jan&lt;br&gt;(No Recitation Mon 30 Jan) /Tue 31 Jan</td>
<td>Structure and Reactions of Benzene (Ch. 14 + 15) Readings: 14.1 – 14.3, 14.7, 14.12 – 14.13, 15.1 – 15.4, 15.6 – 15.9, 15.13</td>
<td>Check in and orientation - Safety in the lab</td>
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<tr>
<td>Week 2&lt;br&gt;Mon 6 Feb/Tue 7 Feb</td>
<td>Concepts of Aromaticity (Ch. 14) Readings: 14.4 – 14.6, 14.14 + Quiz 1</td>
<td>Preparation of Acetanilide</td>
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<tr>
<td>Week 3&lt;br&gt;Mon 13 Feb/Tue 14 Feb</td>
<td>Aromaticity and Reactivity Beyond Benzene (Ch. 15) Readings: 14.9, 15.5 + Quiz 2</td>
<td>Preparation of 4-bromoacetonilide</td>
</tr>
<tr>
<td>Week 4&lt;br&gt;Mon 20 Feb/Tue 21 Feb</td>
<td>Dienes and the Allyl System (Ch 13) Readings: 13.1 – 13.10, 13.13 + Quiz 3</td>
<td>Preparation of 4-bromo, 2-chloroacetanilide</td>
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<tr>
<td>Week 5&lt;br&gt;Mon 27 Feb/Tue 28 Feb</td>
<td>Spectroscopy Review (Ch 9) and Carbonyl Chemistry 1: Addition Reactions (Ch.16) Readings: 16.1 – 16.15, 16.17, 16.19 + First Progress Examination (15%)</td>
<td>Preparation of 4-bromo, 2-chloroaniline</td>
</tr>
<tr>
<td>Week 6&lt;br&gt;Mon 6 Mar/Tue 7 Mar</td>
<td>Carbonyl Chemistry 1: Addition Reactions (Ch. 16) (cont’d) + Quiz 4</td>
<td>Preparation of 4-bromo, 2-chloro, 6-iodoaniline</td>
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**SPRING BREAK: 13 – 17 March (Week 7)**

| Week 8<br>Mon 20 Mar/Tue 21 Mar | Carbonyl Chemistry 1: Addition Reactions (Ch. 16) cont’d and Carboxylic Acids (Ch.17) Readings: 17.1 – 17.7, 17.9 + Quiz 5 | Preparation of 4-bromo, 2-chloro, 5-iodobenzene |
| Week 9<br>Mon 27 Mar/Tue 28 Mar | Carboxylic Acids (Ch.17) cont’d and Derivatives of Carboxylic Acids (Ch. 18) Readings: 18.1 – 18.12 (and maybe 18.13), 18.14 + Quiz 6 | Nitration of bromobenzene + NMR product analysis* |
| Week 10<br>Mon 3 Apr/Tue 4 Apr | Derivatives of Carboxylic Acids (Ch. 18) cont’d + Quiz 7 | Grignard reaction-preparation of triphenylmethanol |
| Week 11  | Mon 10 Apr/Tue 11 Apr | Carbonyl Chemistry 2 (Ch. 19)  
Reading 19.1 – 19.9, 19.11, (and maybe 19.13 – 19.14), 19.16  
+ Quiz 8  | Friedel-Crafts reaction of m-xylene with phthalic anhydride  |
|----------------|----------------------|-------------------------------------------------------------|---------------------------------------------------------------|
| Week 12  | Friday 21 Apr/Tue 18 Apr | NO CLASS EASTER MONDAY (17 April)  
MAKE UP CLASS FOR LECTURE AND RECITATION – FRI 21 April  
Carbonyl Chemistry 2 (Ch. 19) cont’d  
+ Second progress Examination (15%)  | Wittig reaction-preparation of E/Z stilbene mixture + NMR product analysis*  |
| Week 13  | Mon 24 Apr/Fri 28 Apr | Carbonyl Chemistry 2 (Ch. 19) cont’d  
+ Quiz 9  | FRIDAY CLASS – (Make-up class for ANZAC Day 25 April, a Tuesday)  
Aldol condensation-preparation of trans p-anisalacetophenone  |
| Week 14  | Mon 1 May/Tue 2 May | Carbohydrates (Ch. 20)  
Readings: 20.1 – 20.4  
+ Quiz 10  | Chemical kinetics: Kinetic/thermodynamic control of a reaction (pp.450-452)  |
| Week 15  | Mon 8 May | Reactions controlled by Orbital Symmetry (Ch 23) – Selected examples  
Readings: To be advised  | No lab- NMR product analysis reports due  |
| Exam Week | Monday 15 May | Final Exam 9:00-11:00am (35%)  |  |

Your Instructors

Dr Andrew Try (Ph.D., University of Sydney) obtained his BSc (Hons) and PhD at The University of Sydney. He then undertook post-doctoral studies at Cambridge University (1995 – 1996), The University of Sydney (1997), and the University of Texas at Austin (1998 – 2000), before joining Macquarie University in Sydney in mid 2000. He has published more than 60 research papers on subjects ranging from antibiotic resistance, chirality, host-guest chemistry and the synthesis of new fluorescent molecules for use in diagnostic tests.