Organic Chemistry II

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

Instructors
Details
Dr. Seema Sandhu
seema.sandhu@nyu.edu

Dr. Scott Chadwick
src7@nyu.edu

Consultations by Appointment.
Please allow at least 24 hours for your instructors to respond to your emails.

Class Details
Spring 2015

Monday 9:00 – 12:00pm (LECTURE)
February 2 to May 11
Room 202

Tuesday 2:00 – 7:00pm (LAB)
February 3 to May 12
UTS Science Lab C804.03.08
Building 4, 745 Harris Street, Ultimo, NSW 2007

Thursday 1:00 – 2:00pm (RECITATION)
February 5 to May 14
Room 302
NYU Sydney Academic Centre

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.

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 (Week 5 and Week 10)

Final examination 35% of final grade. (Exam Week: Mon 18 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.

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.

A grading rubric will be provided and distributed in class.

Written work due in class must be submitted to your instructor during class time.

Late work should be submitted in person to the Academic Coordinator during regular office hours (9:00am-5:00pm, Monday-Friday). In the absence of the Academic Coordinator, another member of the administrative staff can accept the work in person. The NYUS staff will mark down the date and time of submission in the presence of the student. Students must also submit an electronic copy of late written work to Turn-It-In within 24 hours.
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 (5) weekdays after the submission date without an agreed extension fails and is given a zero.

**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.

Penalties for confirmed cases of plagiarism are severe and are dealt with by the Director, NYU Sydney, not your instructor. Your home school will be notified and you will be dealt with according to the standards of that school. The codes of conduct and academic standards for NYU’s various schools and colleges are outlined in the respective school’s academic resources.

**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. And 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 be penalised with a two percent deduction from the student’s final course grade for every week of classes missed.**

The class roster will be marked in the first five minutes 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. Repeated absences will result in harsher penalties, including failure.

**Classroom Expectations**

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.

**Required Texts**


**Additional Required Equipment**

- Laboratory coats and obligatory safety goggles (these can be borrowed from NYU Sydney)
- Lab notebooks with detachable pages.

**WEEKLY SCHEDULE**

<table>
<thead>
<tr>
<th>Week (Lec/Lab/Rec)</th>
<th>Lecture/Recitation Topic</th>
<th>Laboratory</th>
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<tbody>
<tr>
<td>Week 1:</td>
<td>Conjugation and Aromaticity (Ch. 13)</td>
<td>Check in and orientation - Safety in the lab</td>
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<td>Mon 2/ Tues 3/</td>
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<td>Thus 5 Feb</td>
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<td>Week 2:</td>
<td>Reactions of aromatic compounds (Ch. 14, pp. 623-658) + Quiz 1</td>
<td>Preparation of Acetanilide (p. 713)</td>
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<td>Mon 9/Tues 10/</td>
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<td>Thus 12 Feb</td>
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<td>Week 3:</td>
<td>Further Aromatic Reactions (pp. 659-679) + Quiz 2</td>
<td>Preparation of 4-bromoacetanilide (pp. 731-732)</td>
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<td>Mon 16/Tues 17/</td>
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<td>Thus 19 Feb</td>
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<td>Week 4:</td>
<td>Allenes and dienes- extended conjugation (Ch. 12) + Quiz 3</td>
<td>Preparation of 4-bromo, 2-chloroacetanilide (p. 733)</td>
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<td>Mon 23/Tues 24/</td>
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<td>Thus 26</td>
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<tr>
<td>Week (Lec/Lab/Rec)</td>
<td>Lecture/Recitation Topic</td>
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<td>Week 5: Mon 2/Tues 3/Thus 5 Mar</td>
<td>Introduction to carbonyl group (Ch.16, pp.762-790) + First Progress Examination</td>
<td>Preparation of 4-bromo, 2-chloroaniline (pp. 734-735)</td>
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<td>Week 6: Mon 9/Tues 10/Thus 12 Mar</td>
<td>Carbonyl group chemistry (Ch. 16 pp. 791-813) + Carboxylic acids (Ch. 17 828-835) + Quiz 4</td>
<td>Preparation of 4-bromo, 2-chloro, 6-iodoaniline (pp. 736)</td>
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<td><strong>SPRING BREAK MARCH 16-20</strong></td>
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<td>Week 7: Mon 23/Tues 24/Thus 26 Mar</td>
<td>Carboxylic acids (Ch.17, pp. 837-861) + Quiz 5</td>
<td>Preparation of 4-bromo, 2-chloro, 5-iodobenzene (pp. 737-738)</td>
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<td>Week 8: Mon 30/Tues 31 Mar/Thus 2 Apr</td>
<td>Acyl derivatives of carboxylic acids, halides, anhydrides (Ch. 18, pp. 877-895) + Quiz 6</td>
<td>Nitration of bromobenzene (pp. 515-516)+ NMR product analysis*</td>
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<td>Week 9: Fri 10/Tues 7/Thus 9 Apr</td>
<td>NO CLASS EASTER MONDAY MAKE UP CLASS – FRI 10\textsuperscript{th} APRIL Reactions of carboxylic acid derivatives contd.- esters, amides, nitriles &amp; ketenes (Ch.18, pp. 896-920) + Quiz 7</td>
<td>Grignard reaction-preparation of triphenylmethanol (pp. 652-653)</td>
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<td>Week 10: Mon 13/Tues 14/Thus 16 Apr</td>
<td>Carbohydrates- Sugars (Ch. 22, pp. 1148-1168) + Second progress Examination</td>
<td>Friedel-Crafts reaction of m-xylene with phthalic anhydride (pp. 505-507)</td>
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<td>Week 11: Mon 20/Tues 21/Thus 23 Apr</td>
<td>Amino acids and nucleic acids (Ch. 23 pp. 1174-1202) +Quiz 8</td>
<td>Wittig reaction-preparation of E/Z stilbene mixture (pp. 606, 607) + NMR product analysis*</td>
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<td>Week 12: Mon 27/Tues 28/ Thus 30 Apr</td>
<td>Amino acids and nucleic acids (Ch. 23 pp. 1203-1214) +Concerted reactions (Ch. 20, pp. 1031-1045) + Quiz 9</td>
<td>Aldol condensation-preparation of trans p-anisalacetophenone (pp.619- 620)</td>
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<td>Week 13, Mon 4/Tues 5/Thus 7 May</td>
<td>Concerted reactions (Ch. 20, pp. 1046-1072) + Quiz 10</td>
<td>Chemical kinetics: Kinetic/thermodynamic control of a reaction (pp.450- 452)</td>
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<td>Week 14, Mon 11/Tues 12/Thus 14 May</td>
<td>Intramolecular reactions (Ch. 21, pp. 1081-1117)</td>
<td>No lab- NMR product analysis reports due</td>
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<td>Exam Week Mon 18 May</td>
<td>Final Exam 9.00-11.00am</td>
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Your Instructors

Dr. Seema Sandhu (Ph.D., Punjab University, India) received her Ph.D. in Chemistry in 1992 on “Physico-chemical studies of 1:1 electrolytes in Dimethylformamide+Methanol mixtures at different temperatures”. She has been lecturing since 1994. She has taught at several Australian universities including University of New South Wales and University of Western Sydney. She has also worked as an environmental pollution analyst. Seema currently teaches at the University of Technology, Sydney and at NYU Sydney. She has a number of publications to her credit. Presently she is working on "Design and synthesis of light-harvesting ruthenium-based dyes" and "Synthesis and characterization of a new photo switchable anthracene compound, (S-(2-anthrylmethyl) ethanethioate)" at University of Technology, Sydney. Seema is a Chartered member of Royal Australian Chemical Institute, MRACI (CChem ). She is an avid traveller and is multilingual.

Dr. Scott Chadwick completed his undergraduate degree BSc Applied Chemistry Forensic Science (Hons) in 2009 and completed his Ph.D. at UTS in 2013. His research focused on fingermark detection techniques in the near-infrared region, which involved developing new reagents for developing fingermarks on difficult surfaces, where conventional techniques are unsuccessful. Scott has presented his research at numerous international forensic conferences. During his studies, Scott also worked as a casual academic at UTS where he assisted in the practical classes for subjects such as Chemical Criminalistics, Crime Scene Investigation and Physical Evidence. Currently, Scott is employed as a lecturer at UTS teaching first year chemistry.