

Organic Chemistry I

CHEM-UA 9225

NYU London

Instructor Information

- Dr Aga Kosinska
- Please send me an e-mail to set up the office hours

Course Information

- Lectures: Tuesdays & Thursdays; 4.30 – 5.45
 - Room 104, Bedford Square
- Recitation sessions:
 - Tuesdays; 11.00 – 11.55 in 105 & 3.00 – 3.55 in G05
- Co-requisite: none

Course Overview and Goals

The major aim of this course is to introduce students to the foundations of organic chemistry by focusing on the structures, properties and chemical reactivity of the various hybridization states carbon atoms can adopt in alkanes (including cycloalkanes), alkenes and alkynes. This course will also cover different aspects of isomerism observed in organic compounds as well as the reactions' mechanisms (substitution, elimination, and addition) in terms of the electrons flow. This course will also introduce various analytical techniques (MS, NMR and IR) used to determine organic structures.

Upon Completion of this Course, students will be able to:

- understand bonding and structures of alkanes, alkenes and alkynes;
- understand and recognize various types of isomerism present in the main three groups of hydrocarbon;
- recognize different organic reactions (substitution, elimination, and addition) and to show about breaking/forming using curly arrows representation of the electrons flow;
- investigate simple spectroscopic data to identify structures of organic molecules.

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Course Requirements

Grading of Assignments

The grade for this course will be determined according to these assessment components:

Assignments/ Activities	Description of Assignment	% of Final Grade	Due
Laboratories	Lab reports and final practical examination	25	
Lectures:		75	
Quizzes (15 minutes each)	Quizzes will be conducted in recitation section; There will be 12 quizzes. The top 9 scores you receive on those quizzes will count towards the quiz portion	20	
Midterm exams (75 minutes each)	Two midterm examinations	40	
Final exam (110 minutes)	Final examination	40	

Failure to submit or fulfill any required course component results in failure of the class

Grades

Letter grades for the entire course will be assigned as follows:

Letter Grade	Description
A	Outstanding participation in the course; excellent comprehension and presentation of the course content;
B	Very good involvement in the course; good working knowledge of the learning outcomes;
C	Good participation in the course; reasonable understanding of the course content;
D	Partial engagement in the course; limited working knowledge of the course material;
F	Inadequate involvement in the course; fractional understanding and knowledge of the learning outcomes;

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Course Materials

Preparation for Class: Students should read each chapter before coming to the first class that discusses that material. Because some chapters may take more time than is anticipated, you will need to be attuned to what has been covered in class so you are prepared.

Required Textbooks & Materials

- Maitland Jones and Steven A. Fleming, "*Organic Chemistry*", Fifth Edition, ISBN 0393931498
- Maitland Jones, Jr., Henry L. Gingrich, Steven A. Fleming, "*Study Guide/Solutions Manual to Accompany Organic Chemistry*", Fifth Edition, ISBN 978-0-393-93659- 9

Optional Textbooks & Materials

- Clayden Jonathan et al., "*Organic Chemistry*", ISBN 0-19-850346-6
- Michael Hornby and Josephine Peach, "*Foundations of Organic Chemistry*", ISBN 978-0-19-855680-0
- Patrick Graham, "*A very short introduction: Organic Chemistry*", ISBN 978-0-19-875977-5

Resources

- **Access your course materials:** [NYU Classes](http://nyu.edu/its/classes) (nyu.edu/its/classes)
- **Databases, journal articles, and more:** [Bobst Library](http://library.nyu.edu) (library.nyu.edu)
- **NYUL Library Collection:** [Senate House Library](http://catalogue.libraries.london.ac.uk) (catalogue.libraries.london.ac.uk)
- **Assistance with strengthening your writing:** [NYU Writing Center](http://nyu.mywconline.com) (nyu.mywconline.com)
- **Obtain 24/7 technology assistance:** [IT Help Desk](http://nyu.edu/it/servicedesk) (nyu.edu/it/servicedesk)

Course Schedule

Session/Date	Topic	Reading	Assignment Due
Session 1:	Introduction		
Session 2:	<ul style="list-style-type: none">• Atoms & atomic orbitals• Covalent bonds & Lewis structures• Formal charges	Chapter: 1.1 – 1.4 Pages: 4 - 22	
Session 3:	<ul style="list-style-type: none">• Resonance structures & curly arrows conventions• Molecular orbitals (H₂)	Chapter: 1.5 – 1.6 Pages: 23 - 37	Quiz 1
Session 4:	<ul style="list-style-type: none">• Bond strength• Intro to electrophiles & nucleophiles	Chapter: 1.7 – 1.8 Pages: 37 - 44	
Session 5:	Alkanes (nomenclature, constitutional isomerism, conformational analysis)	Chapter 2 Pages: 52 - 97	Quiz 2

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Session/Date	Topic	Reading	Assignment Due
Session 6:	Alkanes (nomenclature, constitutional isomerism, conformational analysis)	Chapter 2 Pages: 52 - 97	
Session 7:	Alkenes & Alkynes (structure, addition reaction)	Chapter 3 Pages: 101 – 146	Quiz 3
Session 8:	Alkenes & Alkynes (structure, addition reaction)	Chapter 3 Pages: 101 – 146	
Session 9:	Stereochemistry (chirality, enantiomers)	Chapter 4 Pages: 151 – 187	Quiz 4
Session 10:	Material covered up to Session 8	Chapters 1 - 3	Midterm examination
Session 11:	Stereochemistry (chirality, enantiomers)	Chapter 4 Pages: 151 – 187	Quiz 5
Session 12:	Rings (cycloalkanes, polycyclic compounds)	Chapter 5 Pages: 190 – 226	
Session 13:	Rings (cycloalkanes, polycyclic compounds)	Chapter 5 Pages: 190 – 226	Quiz 6
Session 14:	Substituted alkanes	Chapter 6 Pages: 229 - 264	
Session 15:	Substitution reactions S _N 1	Chapter 7 Pages: 267 - 325	
Session 16:	Substitution reactions S _N 2	Chapter 7 Pages: 267 - 325	Quiz 7
Session 17:	Elimination reactions E1	Chapter 8 Pages: 331 – 363	
Session 18:	Elimination reactions E2	Chapter 8 Pages: 331 – 363	Quiz 8
Session 19:	Instrumental analysis (NMR, IR, MS)	Chapter 9 Pages: 367 - 430	
Session 20:	Instrumental analysis (NMR, IR, MS)	Chapter 9 Pages: 367 - 430	Quiz 9
Session 21:	Instrumental analysis (NMR, IR, MS)	Chapter 9 Pages: 367 - 430	
Session 22:	Material covered up to Session 18	Chapters 4 - 8	Midterm examination
Session 23:	Electrophilic Additions to Alkenes	Chapter 10 Pages: 441 - 481	Quiz 10
Session 24:	Electrophilic Additions to Alkenes	Chapter 10 Pages: 441 - 481	
Session 25:	More Addition Reactions to π bonds	Chapter 11 Pages: 487 - 537	Quiz 11
Session 26:	More Addition Reactions to π bonds	Chapter 11 Pages: 487 - 537	

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Session/Date	Topic	Reading	Assignment Due
Session 27:	Radical Reactions	Chapters 12 Pages: 554 - 584	Quiz 12
Session 28:	Radical Reactions	Chapters 12 Pages: 554 - 584	
	FINAL EXAMINATION		

Co-Curricular Activities

- none

Classroom Etiquette

- Toilet breaks should be taken before or after class or during class breaks.
- Food & drink, including gum, are not to be consumed in class, except bottled water.
- Mobile phones should be set on silent and should not be used in class except when instructed by the lecturer.
- Laptops are only to be used for the note-taking activities.
- Please kindly dispose of rubbish in the bins provided.

NYUL Academic Policies

Attendance and Tardiness

- Key information on NYU London's absence policy, how to report absences, and what kinds of absences can be excused can be found on our [website](http://www.nyu.edu/london/academics/attendance-policy.html) (<http://www.nyu.edu/london/academics/attendance-policy.html>)

Assignments, Plagiarism, and Late Work

- You can find details on these topics and more on this section of our NYUL [website](https://www.nyu.edu/london/academics/academic-policies.html) (<https://www.nyu.edu/london/academics/academic-policies.html>) and on [the Policies and Procedures section of the NYU website](https://www.nyu.edu/academics/studying-abroad/upperclassmen-semester-academic-year-study-away/academic-resources/policies-and-procedures.html) for students studying away at global sites (<https://www.nyu.edu/academics/studying-abroad/upperclassmen-semester-academic-year-study-away/academic-resources/policies-and-procedures.html>).

Classroom Conduct

Academic communities exist to facilitate the process of acquiring and exchanging knowledge and understanding, to enhance the personal and intellectual development of its members, and to advance the interests of society. Essential to this mission is that all members of the University Community are safe and free to engage in a civil process of teaching and learning through their experiences both inside and outside the classroom. Accordingly, no student should engage in any form of behavior that interferes with the academic or educational process, compromises the personal safety or well-being of another, or disrupts the administration of University programs or services. Please refer to the [NYU Disruptive Student](#)

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[Behavior Policy](#) for examples of disruptive behavior and guidelines for response and enforcement.

Disability Disclosure Statement

Academic accommodations are available for students with disabilities. Please contact the Moses Center for Students with Disabilities (212-998-4980 or mosescsd@nyu.edu) for further information. Students who are requesting academic accommodations are advised to reach out to the Moses Center as early as possible in the semester for assistance.

Instructor Bio

In 2000, Dr Aga Kosinska graduated from Gdansk University of Technology in Poland with MSc engineer degree in Chemical Technology. In 2001, she started her international adventure across countries and educational systems around the world. In 2003, she began her research in the area of analytical chemistry at the University of San Francisco (USF) where she received: The American Institute of Chemists Foundation Award Certificate as an Outstanding Student Majoring in Chemistry and The Department of Chemistry Graduate Award for Achievement in Teaching. Then, Dr Kosinska moved to the University of St Andrews where she did her PhD studies in the area of organic and medicinal chemistry. Her research focused on the design and synthesis of novel *N*-hydroxyguanidines as NO donors. In 2010, she started working as a Chemistry Teaching Fellow at UCL's Centre for Preparatory Studies in Astana, Kazakhstan. She came back to the UK in 2013, and started working as a Lecturer in Extended Science at Plymouth University. In 2014, she completed Postgraduate Certificate in Academic Practice and become a Fellow of Higher Education Academy. Currently, she is working at the UCL's Centre for Languages and International Education as the Senior Chemistry Teaching Fellow where she has been sharing her innovative learning and teaching approaches to international students.