



蘇州大學
Soochow University

Soochow University

CHM 331 Advanced Organic Chemistry

Summer 2021

Course information

Course Credits: 4

Contact Hours: 55 hours

Class Time: 8:30 - 10:20

Instructor: TBA

Course Format: Online

Course Description

Organic chemistry is a one of the critical subfields in the science of chemistry. This course cares about the organic synthesis portion. since it is designed for seniors, students are required of the preliminary knowledge of fundamental organic chemistry. The theories and principles of organic synthesis will be demonstrated in an concise and practical way. Topics in this course will cover synthesis design, formations of carbon-carbon bonds, protecting functional group, functional group transformations, etc. Polynuclear aromatic hydrocarbons, heterocyclic aromatic compounds, polymers, carbohydrates, amino acids, peptides, proteins, alkaloids and etc. will also be studies in line with the above perspective.

Prerequisite(s)

None



Learning Objectives

Upon completion of this course, students will be able to:

1. Understand and be able to explain the general principles, laws, and theories of organic chemistry;
2. Explain how the synthesis mechanism relevant to organic-chemical reactions;
3. Demonstrate proficiency of solving stereochemical problems related to chemical transformations;
4. Understand chemical properties of carbohydrates, amino acids, peptides, proteins and etc in the context of organic synthesis;
5. Use critical thinking and logic in the solution of problems.

Methodology

Methodology	Hours	Hours of work During class	Hours of work After class
Online Video	50	88 hours (60%)	
Online Forum Discussion	8		
Assessment	30		
Personal study	30		68 hours (40%)
Tasks	22		
Practical teaching preparation	10		
Bibliographic search	6		
Total	156	88	68

Textbook(s)

1. *Modern Organic Synthesis* by George Zweifel, Michael Nantz, W. H. Freeman, 2006.
2. *Organic Chemistry-III* by S.P. Bhutani, Ane Books Pvt. Ltd, 2007.



Tasks and Evaluation

Assignments	40% (10% for each)
Midterm	25%
Final exam	35%

Students are required to attend online classes on the scheduled time. Missing classes without permission will lead to decrease in overall grade.

- Missing less than two classes: no penalty.
- Missing more than two classes: 7% will be taken off from the overall grade.

Online forum discussion is required. Students are required to post at least one question and answer at least one question on the forum weekly.

Online Tutorials are mandatory. Students will read and discuss academic articles provided. Students will also discuss the case studies for the week's lectures. Each Tutorial will be 1 hour.

All exams will be held online and the time of each exam will be limited to 1 hour. Exams must also be taken at the scheduled time. There will be no make-up exams

Rating system:

1. Assessment

ASSESSMENT ITEM	PERCENT OF FINAL GRADE
Assignments	40% (10% for each)
Midterm	25%
Final exam	35%



2. Grading Scale

A+ 96-100	A 90-95	A- 85-89
B+ 82-84	B 78-81	B- 75-77
C+ 71-74	C 66-70	C- 62-65
D 60-61	F < 60	

Course Content

Week	Lecture	Topics	Dues	%
1	1	Introduction		
	2	Synthetic Design		
	3	Stereochemical Considerations in Planning Syntheses		
	4	Protecting Functional Groups		
	5	Protecting Functional Groups (Cont.)	Assignment 1	10
2	6	Functional Group Transformations: Oxidation		
	7	Functional Group Transformations: Reduction		
	8	Reactions of Carbon-Carbon Double Bonds		
	9	Reactions of Carbon-Carbon Triple Bonds		
	10	Formation of Carbon-Carbon Single Bonds Via Enolate Anions	Assignment 2	10
3	11		Midterm Test	25
	12	Formation Of Carbon-Carbon Bonds Via Organometallic Reagents		
	13	Formation Of Carbon-Carbon Bonds Via Organometallic Reagents (Cont.)		
	14	Formation of Carbon-Carbon Double Bonds		
	15	Formation of Carbon-Carbon Triple Bonds	Assignment 3	10
4	16	Syntheses Of Carbocyclic Systems		



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	17	The Art of Synthesis		
	18	Polynuclear Aromatic Hydrocarbons		
	19	Heterocyclic Aromatic Compounds		
	20	Polymers—The Giant Molecules	Assignment 4	10
5	21	Carbohydrates		
	22	Amino Acids, Peptides and Proteins		
	23	Alkaloids		
	24	Final Exam Review		
	25		Final Exam	35



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University Regulations and Services

Soochow University highly values the academic integrity and aims to promote the academic fairness, honesty and responsibility. Any academic dishonesty behaviors and any attempts to cheats and plagiarism will be reported to the university administration office. A written warning and the relevant penalties will be imposed. The record might be shown on the official university transcript.

Soochow University also highly respects students' accommodation for disabilities and religions. You might contact the Student Accessibility Office if you have any questions, concerns or if you would like to report any offensive behaviors.

Note:

Please contact the University Administrative Office immediately if you have a learning disability, a medical issue, or any other type of problem that prevents professors from seeing you have learned the course material.