

CEHM 237
ORGANIC CHEMISTRY I

FALL 2009

Instructor: Professor Hyun-Soon Chong
Chemistry Division, BCPS Dept, IIT, LS 398, Chong@iit.edu, 312-567-3235

Course Hours: TR 1:50 - 3:05 pm, LS 111 (lecture)

Office Hours: MW 3-5 pm in Room LS 398 or by Appointment

Required Textbook:

1. *Organic Chemistry*, L. G. Wade (7th Ed, Prentice Hall)
2. *Solution manuals for Organic Chemistry* (Simek, 7th Ed, Prentice Hall)
3. *Darling Molecular Models* (Thomson)
4. *Operational Organic Chemistry*, J. W. Lehman (4th Ed, Prentice Hall)

Blackboard: Lecture notes, HW problems, answer keys to exams and quizzes, and other announcements will be posted in the blackboard.

Course Objectives

1. Write IUPAC and common names of alkanes, alkyl halides, alkenes, alkynes, alcohols and related substances.
2. Write mechanisms of organic chemical reactions leading to or involving alkanes, alkyl halides, alkenes, alkynes, alcohols and related substances.
3. Draw structures of products of organic chemical reactions involving alkanes, alkyl halides, alkenes, alkynes, alcohols and related substances.
4. Devise short synthetic sequences leading to organic molecules. Understand the stereochemistry of organic molecules.
5. Demonstrate proficiency in acid base chemistry, chemical energetics, structure property relationships, and other topics related to alkanes, alkyl halides, alkenes, alkynes and alcohols.
6. Demonstrate proficiency in organic chemistry laboratory exercises and safety.

Evaluation

Final mark will be determined from your performance in the following areas:

Term Test 1: 100 points
Term Test 2: 100 points
Term Test 3: 100 points
Homework: 100 points
Quizzes (10/semester): 100 points
Class participation: 50 points
Final Exam: 200 points
Laboratory (25%): 250 points
Total: 1,000 points

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Homework, Quizzes, and Classroom

It is strongly suggested that the students do solve all in-chapter problems for sections covered in the lecture. Homework problems at the end of each chapter of the textbook will be assigned and collected regularly in the lecture. The purpose of homework is to help you learn the course material and monitor your progress on the class. There will be 11 quizzes throughout the semester. One lowest quiz score will be dropped from your grade calculation. There will be no make-up quizzes. The assigned homework problems will make up the bulk of the quiz questions. Students are expected to study the appropriate chapter of the text before coming to class.

The lecture schedule is only a rough guide, and likely will be changed as needed.

Course Schedule (Tentative)

DATE	Chapter (Sections)	Homework problems
Aug 25	Chapter 1. Introduction and review (1-4)	3, 5, 6, 8, 23, 26, 34, 36, 37, 40, 41-46 (Due: 1:50 pm, Sep 3)
Aug 27	Chapter 1 (5-10)	
Sep 1	Chapter 1 (11-14)	
Sep 3	Chapter 2. Structure and properties of organic molecules (1-6) [Quiz 1]	4, 10, 14, 18, 27, 28, 30, 31, 39, 40, 42, 44 (Due: 1:50 pm, Sep 10)
Sep 8	Chapter 2 (7-13)	
Sep 10	Chapter 3. Structure and stereochemistry of alkanes (1-8) [Quiz 2]	16, 22, 25, 29, 33, 34, 37 (a-c, f, g), 40, 42-44 (Due: 1:50 pm, Sep 17)
Sep 15	Chapter 3 (9-16)	
Sep 17	Chapter 4. The study of chemical reactions (1-8) [Quiz 3]	11, 19 (a-d), 25, 31, 36, 37, 39, 41, 44, 45, 46 (c, d, g, h), 51 (Due: 1:50 pm, Sep 24)
Sep 22	Chapter 4 (9-16)	
Sep 24	Chapter 5. Stereochemistry (1-8) [Quiz 4]	3 (c, d, f, j), 6, 16, 17 (a-c), 19 (g-i), 20 (b-d), 27-31, 34 (Due: 1:50 pm, Oct 6)
Sep 29	EXAM 1 (1 Hour)	Chapters 1-4
Oct 1	Chapter 5. Stereochemistry (9-16)	
Oct 6	Chapter 6. Alkyl Halides: Nucleophilic Substitution and Elimination (1-8) [Quiz 5]	10, 11, 12, 14, 16, 18, 20, 26, 42-47, 53, 56, 64, 66, 75 (a, c) (Due: 1:50 pm, Oct 15)
Oct 8	Chapter 6 (9-16)	

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3, 5, 6, 8, 23, 26, 34, 36, 37, 40, 41-46 (Due: 1:50 pm, Sep 3)

Aug 27 Chapter 1 (5-10)

Sep 1 Chapter 1 (11-14)

Sep 3

Chapter 2. Structure and properties of organic molecules (1-6) [Quiz 1]

4, 10, 14, 18, 27, 28, 30, 31, 39, 40, 42, 44 (Due: 1:50 pm, Sep 10)

Sep 8 Chapter 2 (7-13)

Sep 10

Chapter 3. Structure and stereochemistry of alkanes (1-8) [Quiz 2]

16, 22, 25, 29, 33, 34, 37 (a-c, f, g), 40, 42-44 (Due: 1:50 pm, Sep 17)

Sep 15 Chapter 3 (9-16)

Sep 17

11, 19 (a-d), 25, 31, 36, 37, 39, 41, 44, 45, 46 (c, d, g, h), 51 (Due: 1:50 pm, Sep 24)

Sep 22 Chapter 4 (9-16)

Sep 24

Chapter 4. The study of chemical reactions (1-8) [Quiz 3]

3 (c, d, f, j), 6, 16, 17 (a-c), 19 (g-i), 20 (b-d), 27-31, 34 (Due: 1:50 pm, Oct 6)

Sep 29 EXAM 1 (1 Hour) Chapters 1-4

Oct 1 Chapter 5. Stereochemistry (9-16)

Oct 6

Chapter 5. Stereochemistry (1-8) [Quiz 4]

Chapter 6. Alkyl Halides: Nucleophilic Substitution and Elimination (1-8) [Quiz 5]
10, 11, 12, 14, 16, 18, 20, 26, 42-47, 53, 56, 64, 66, 75 (a, c) (Due: 1:50 pm, Oct 15)
Oct 8 Chapter 6 (9-16)

Oct 13	Chapter 6 (17-21)	
	Chapter 7. Structure and Synthesis of Alkenes (1-6)	2, 10, 11, 19, 22, 29, 31, 33, 38, 39, 40, 46, 53
Oct 15	[Quiz 6]	(Due: 1:50 pm, Oct 22)
Oct 20	Chapter 7 (7-11)	
	Chapter 8. Reactions of alkenes (1-7)	3, 13 (b,c), 15 (a,b), 27, 37, 47, 48, 50, 58, 59, 61
Oct 22	[Quiz 7]	(Due: 1:50 pm, Nov 5)
Oct 27	EXAM 2 (1 Hour)	Chapters 5-7
Oct 29	Chapter 8 (8-12)	
Nov 3	Chapter 8 (13-16)	
	Chapter 9. Alkynes (1-7)	5, 8 (b,c), 28-29, 33, 34, 36, 37, 40, 43
Nov 5	[Quiz 8]	(Due: 1:50 pm, Nov 10)
Nov 10	Chapter 9 (8-10)	
	Chapter 10. Structure and Synthesis of Alcohols (1-8)	11, 12, 14, 21, 22, 37, 38, 39 (all except d), 40, 42, 44, 49
Nov 12	[Quiz 9]	(Due: 1:50 pm, Nov 19)
Nov 17	Chapter 10 (9-12)	
	Chapter 11. Reactions of Alcohols (1-8)	5, 6, 9, 21, 22, 41, 42, 48, 49, 53
Nov 19	[Quiz 10]	(Due: 1:50 pm, Dec 3)
Nov 24	EXAM 3 (1 hour)	Chapters 8-10
Nov 26	Thanksgiving Day (No Class)	
Dec 1	Chapter 11 (9-14)	
Dec 3	Review [Quiz 11]	
Dec 8-14	Comprehensive Final Exam (2 Hour) Day/Time/Place (TBA)	Chapters 1-11

Oct 13 Chapter 6 (17-21)

Oct 15

Chapter 7. Structure and Synthesis of Alkenes (1-6) [Quiz 6]

2, 10, 11, 19, 22, 29, 31, 33, 38, 39, 40, 46, 53 (Due: 1:50 pm, Oct 22)

Oct 20 Chapter 7 (7-11)

Oct 22

3, 13 (b,c), 15 (a,b), 27, 37, 47, 48, 50, 58, 59, 61 (Due: 1:50 pm, Nov 5)

Oct 27 EXAM 2 (1 Hour) Chapters 5-7

Oct 29 Chapter 8 (8-12)

Nov 3 Chapter 8 (13-16)

Nov 5

Chapter 8. Reactions of alkenes (1-7) [Quiz 7]

Chapter 9. Alkynes (1-7) [Quiz 8]

5, 8 (b,c), 28-29, 33, 34, 36, 37, 40, 43 (Due: 1:50 pm, Nov 10)

Nov 10 Chapter 9 (8-10)

Nov 12

Chapter 10. Structure and Synthesis of Alcohols (1-8) [Quiz 9]

11, 12, 14, 21, 22, 37, 38, 39 (all except d), 40, 42, 44, 49 (Due: 1:50 pm, Nov 19)

Nov 17 Chapter 10 (9-12)

Nov 19

Chapter 11. Reactions of Alcohols (1-8) [Quiz 10]

5, 6, 9, 21, 22, 41, 42, 48, 49, 53 (Due: 1:50 pm, Dec 3)

Nov 24 EXAM 3 (1 hour) Chapters 8-10

Nov 26 Thanksgiving Day (No Class)

Dec 1 Chapter 11 (9-14)

Dec 3 Review [Quiz 11]

Dec 8-14

Comprehensive Final Exam (2 Hour)

Day/Time/Place (TBA) Chapters 1-11