

Nagoya University, School of Engineering Lecture information system (SYLLABUS)

Organic Chemistry II(2.0 credits)

Code	: 10159
Course Type	: Basic Specialized Courses
Class Format	: Lecture
Course Name	: Chemistry
Starts 1	: 2 Spring Semester
Elective/Compulsory	: Compulsory
Lecturer	: Jiyoung SHIN Designated Professor

•Course Purpose

The main purpose of this course is to acquire a logical framework for understanding fundamental organic chemistry. Many chemical reactions of organic compounds begin with nucleophile-electrophile interactions. This framework provides an influence for chemical reactions of the organic molecules having π -bonds. On the basis of the knowledge, we consecutively learn how to solve practical problems in organic chemistry.

•Prerequisite Subjects

Fundamental Chemistries I and II, Organic Chemistry I

•Course Topics

1. Reactions of Alkenes

- Nucleophilic Characters of π -Bond and Electrophilic Additions
- Hydrogenation, Hydration, Hydrohalogenation, and Halogenation
- Haloalcohol and Haloether Syntheses
- Carbene Addition
- Oxidation
- Radical Addition
- Polymer Synthesis

2. Reactions of Alkynes

- Reduction and Electrophilic Additions
- Radical Addition
- Oxidation
- Heck Reaction

3. Delocalized π -Systems

- Stability of Extended Conjugation and Benzene
- Transformation of Conjugated Dienes: Diels Alder Cycloaddition

4. Reaction of Benzene

- Aromatic and Antiaromatic Compounds
- Electrophilic Aromatic Substitutions

- Halogenation, Nitration, and Sulfonation
 - Friedel-Crafts Alkylation and Friedel-Crafts Acylation
5. Electrophilic Attack on Derivatives of Benzene
6. Nucleophilic Substitutions via Benzyne Intermediates

• **Textbook**

Organic Chemistry: Structure and Function (Seventh Edition), Peter C. Vollhardt and Neil E. Schore, (W. H. Freeman and Company), New York, 2014, Chapters 11-16 and 22

• **Additional Reading**

• **Grade Assessment**

Examination [total 70%: two midterms(20% for each) and one final (30%)], Attendance (10%), and Assignment of Homework (20%): Credits will be awarded to those students who score 60 or more.

Grades are as follows: S:100-90, A:89-80, B:79-70, C:69-60, F:59-0.

- In the cases of any unavoidable reasons such as sickness, accident, or no attendance school, the student may get a grade of 'Absent' through the judgment of the course instructor and the student, when the student submits a 'Course Withdrawal Request Form' to receive the 'Absent' grade. Furthermore, no submission of sickness/absence reports and lack of attendance score will result in 'F' grade. It is for the protection of other attendances in the corresponding course from the frequent absences of the specific/uncertain student(s).

• **Notes**

• **Contacting Faculty**

Students can communicate with their course instructor face-to-face either in the class or in the appointment time. Communication through an e-mail (jyshin@apchem.nagoy-u.ac.jp) is also available.

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