

## Syllabus (2021-Fall)

Course Title	유기화학 II Organic Chemistry II	Course No.	20570-01
Department/ Major	화학·나노과학 Chemistry and Nano Science	Credit/Hours	3
Class Time/ Classroom	POSCO (포) 363 Tues. (화) 09:30-10:45 Fri. (금) 11:00-12:15		
Instructor	Name: Jean Bouffard (잔 보파드)	Department:	화학·나노과학 Chemistry and Nanoscience
	E-mail: bouffard@ewha.ac.kr	Phone:	3277-3427
Office Hours/ Office Location	종합과학관 D동 402호 / General Science D402 Office Hours : By Appointment		

### I. Course Overview

#### 1. Course Description

Organic Chemistry II will expand on the study of the chemical properties of compounds that contain the element carbon. In particular, this course will explore the chemistry of many functional groups (aromatics, carboxylic acid and their derivatives, carbonyls and amines) that form the basis for the Chemistry of all known living beings.

#### 2. Prerequisites

Students who take Organic Chemistry II will be expected to have successfully taken Organic Chemistry I, and to be able to utilize the main concepts covered in that class (acidity and basicity, nucleophilicity and electrophilicity, stereochemistry, etc.)

A short review of the key concepts of Organic Chemistry I will be given in the first week of the term.

#### 3. Course Format

Lecture	Discussion/Presentation	Experiment/Practicum	Field Study	Other
100%	%	%		%

(Instructor can change to match the actual format of the class.)

Explanation of course format: This class will use a combination of PowerPoint slides and board-based lectures. Additional handouts on a given topic will be distributed as required. The class may given mostly online, depending on the evolution of the COVID-19 pandemic, as assessed by the Ewha University administration.

#### 4. Course Objectives

This course will explore the chemistry of many functional groups (aromatics, carboxylic acid and their derivatives, carbonyls and amines) that form the basis for the Chemistry of all known living beings.

#### 5. Evaluation System

☐ Relative evaluation ☐ Absolute evaluation ☒ Others : Semi-Absolute Method (see below)

- Explanation of evaluation system:

- No fixed numbers of A's, B's, C's etc. for this class.
- Students final scores are compared to the score of the class' top student.
- $\geq 80\%$  of the top score for A's;  $\geq 60\%$  of the top score for B's;  $\geq 40\%$  of the top score for C's;  $\geq 20\%$  of the top score for D's.
- In all cases, letter-grade modifiers (+/0/-) are left at the discretion of the professor.

Midterm Exams	Final Exam	Quizzes	Presentation	Projects	Assignments	Participation	Other
50%	50%	%	%	%	%	%	%

• Total: 400 pts.

Midterm Exams (2): 200 pts. (2\*100 pts)

Final Exam: 200 pts.

- The final exam will cover the **entire** course material.
- If a student performs better on the Final Exam than on the weighed average of the midterm exams and the final exam, only the latter result will be used to calculate the exam score. *For Example:* Ms. Smith obtained 60 pts. on each of the 2 midterms (120 pts.; 60%) and 160 pts. on the final exam (80%). Since the final exam result is better, her final grade will be 320 pts. (80%), instead of 280 pts. (70%).
- Practice problem sets will be distributed on a weekly basis, but will not count in toward the overall class score.

## II. Course Materials and Additional Readings

### 1. Required Materials

### 2. Supplementary Materials

**Class Textbook:**

L. G. Wade, Jr., "Organic Chemistry", 9th ed. (International Ed.), 2017 Pearson.

### 3. Optional Additional Readings

## III. Course Policies

\* In addition, exam practice problem sets will be distributed before the midterm and final exams. Completing these exam practice problem sets is optional (will not count in course grade), but is **highly recommended** to prepare for the exams.

\* Students who want to meet with the professor can request an appointment by e-mail (bouffard@ewha.ac.kr), or simply visit my office (General Science D402). However, to guarantee that I am available to help you, taking an appointment is preferable.

#### IV. Course Schedule (15 credit hours must be completed.)

Week	Date	Topics & Class Materials, Assignments
Week 1		
	(09/03)	#1 Introduction & Review of Org. Chem. I
Week 2	(09/07)	#2 Mass Spectrometry and Elemental Analysis (Wade Ch. 12)
	(09/10)	#3 Infrared Spectroscopy; Introduction to NMR (Wade Ch. 12, 13)
Week 3	(09/14)	#4 NMR Spectroscopy (Wade Ch. 13)
	(09/17)	#5 NMR Spectroscopy (Wade Ch. 13)
Week 4	(09/21)	No class on 09.21 (추석)
	(09/24)	#6 Introduction to Molecular Orbital Theory, Conjugation, Resonance, Dienes (Ch. 15)
Week 5	(09/28)	#7 Diels-Alder Cycloadditions; Benzene, aromatic rings and aromaticity (Wade Ch. 15, 16)
	(10/01)	#8 Aromaticity, Electrophilic Aromatic Substitution Reactions (Wade Ch. 16, 17)
Week 6	(10/05)	#9 Electrophilic Aromatic Substitution Reactions (Wade Ch. 17)
	(10/08)	#10 Electrophilic Aromatic Substitution Reactions (Wade Ch. 17) 1st Midterm Exam: 10/09 (Sat.) 10:00-12:00
Week 7	(10/12)	#11 Amines I: Generalities, Arenediazonium Chemistry (Wade Ch. 19)
	(10/15)	#12 Carbonyl Chemistry I: Aldehydes and Ketones (Wade Ch. 18)
Week 8	(10/19)	#13 Carbonyl Chemistry I; Carboxylic Acids (Wade Ch. 18, 20)
	(10/22)	No class on 10.22 (10.20~10.22 Midterm Exams Period)
Week 9	(10/26)	#14 Carboxylic Acids and Derivatives (Wade Ch. 21)
	(10/29)*	#15 Carboxylic Acids and Derivatives: Additions and Substitutions (Wade Ch. 21) * No class in 포스코관 (면접고사)
Week 10	(11/02)	#16 Carboxylic Acids and Derivatives: Additions and Substitutions (Wade Ch. 21)
	(11/05)*	#17 Carboxylic Acids and Derivatives, Intro to Enols and Enolates (Wade Ch. 21, 22) * No class in 포스코관 (면접고사)
	(11/09)	#18 Substitution Reactions of Carbonyl Compounds at the $\alpha$ -Carbon (Wade Ch. 22)
Week 11	(11/12)	#19 Substitution Reactions of Carbonyl Compounds at the $\alpha$ -Carbon (Wade Ch. 22) 2nd Midterm Exam: 11/13 (Sat.) 10:00-12:00
Week 12	(11/16)	#20 Carbonyl Condensation Reactions (Wade Ch. 22)
	(11/19)	#21 Carbonyl Condensation Reactions (Wade Ch. 22)
	(11/23)	#22 Enol/Enolate Chemistry and C-C Bond Formation in Organic Synthesis (Wade Ch. 22)
Week 13	(11/26)*	#23 Amines II: Alkylation and Synthesis of Amines (Wade Ch. 19, 22) * No class in 포스코관 (논술고사)
Week 14	(11/30)	#24 Amines II: Synthesis of Amines, Reactivity of Imines and Iminiums ions (Wade Ch. 19)



Week	Date	Topics & Class Materials, Assignments
	(12/02)	#25 Modern C–C Bond Formation Methods in Organic Synthesis
Week 15	(12/07)	#26 Review
	(12/10)	#27 Final Exam Preparation
Makeup Class	(12/14)	#28 (Makeup Class)
Makeup Class	(12/17)	<b>Final Exam: 12/18 (Sat.) 10:00-12:30</b>

\* Unforeseen adjustments to the class schedule (and/or the use of online classes) may be unavoidable depending of the evolution of the Covid-19 situation.

## V. Special Accommodations

\* According to the University regulation section #57-3, students with disabilities can request for special accommodations related to attendance, lectures, assignments, or tests by contacting the course professor at the beginning of semester. Based on the nature of the students' request, students can receive support for such accommodations from the course professor or from the Support Center for Students with Disabilities (SCSD). Please refer to the below examples of the types of support available in the lectures, assignments, and evaluations.

Lecture	Assignments	Evaluation
<ul style="list-style-type: none"> <li>. Visual impairment : braille, enlarged reading materials</li> <li>. Hearing impairment : note-taking assistant</li> <li>. Physical impairment : access to classroom, note-taking assistant</li> </ul>	Extra days for submission, alternative assignments	<ul style="list-style-type: none"> <li>. Visual impairment : braille examination paper, examination with voice support, longer examination hours, note-taking assistant</li> <li>. Hearing impairment : written examination instead of oral</li> <li>. Physical impairment : longer examination hours, note-taking assistant</li> </ul>

- Actual support may vary depending on the course.

\* The contents of this syllabus are not final—they may be updated.