

QUEENSBOROUGH COMMUNITY COLLEGE

CHEMISTRY DEPARTMENT

COURSE OUTLINE

CH-252

ORGANIC CHEMISTRY II

Hours: 3 Class Hours 4 Laboratory Hour 1 Recitation Hour 5 Credits

Pre-requisites: CH-151,152, and 251

Course Description:

A continuation of CH-251, this course develops the relationship between properties and structure of organic compounds in greater detail. In addition, current syntheses, modern mechanisms of organic reactions, and spectroscopic identification of compounds are discussed. The main families of organic compounds of bio-chemical interest and their typical reactions are studied. Laboratory work involves the synthesis, purification, and identification of organic compounds, as well as organic qualitative analysis.

Curricula for which the course is required/recommended:

A.S. Degree Programs in Liberal Arts and Sciences (Science and Mathematics), Engineering Science, Health Sciences, and Environmental Health.

General Education Objectives: Use analytical reasoning and mathematical skills to solve problems; integrate knowledge and skills in their major field and across the disciplines; use information management skills effectively for academic research and lifelong learning.

Course Objectives/ Expected Student Learning Outcomes:

The objective of this course is to introduce students to the logic of organic chemistry by selecting the topics and developing them systematically. To best achieve this objective, is to provide students with a framework that entices them to gather their thoughts to better understand the relationship between structure and function. There is great emphasis of biological applications throughout this course. Use of computer graphics can assist students to visually understand of intricate connection between structure and properties.

Texts: ORGANIC CHEMISTRY, 9TH EDITION, T. W. Graham Solomons, John Wiley & Sons
WORKBOOK PROBLEMS FOR ORGANIC CHEMISTRY, Sarlo & Svoronos, Wm. C. Brown Publishers, ISBN 0072899689

LAB MANUAL: ORGANIC CHEMISTRY LABORATORY MANUAL, 2ND ED.
P. Svoronos, E. Sarlo and R. J. Kulawiec, Wm. C. Brown Publishers
ISBN 0-697-33923-8

CH-252: Organic Chemistry II

Methods by which student learning will be evaluated:

The general guidelines for assessing grades are as follows:

- Examinations, Assignments and Classroom Performance 50%
- Laboratory Work 25%
- Final Examination 25%

The distribution may be changed at the discretion of the individual instructor. Aside from the above, the student is mandated to take the American Chemical Society (ACS) assessment test which will be administered during the last laboratory period (check-out, week 14). 10% of that grade will be added to the student's final course grade. The ACS exam cannot lower the final course grade.

Accommodations for students with disabilities: Any student who feels that he/she may need an accommodation based upon the impact of a disability should contact the office of Services for Students with Disabilities in Science Building, room 132 (718-631-6257) to discuss his/her specific needs and to coordinate reasonable accommodations for documented disabilities. Students should also contact their instructor privately to discuss their specific needs.

Academic Integrity: Academic honesty is taken extremely seriously and is expected of all students. All assignments must be the original work of the student (and partners or group, if applicable). All questions or concerns regarding ethical conduct should be brought to the course instructor. "It is the official policy of the College that all acts or attempted acts that are violations of academic integrity be reported to the Office of Student Affairs (OSA). At the faculty member's discretion and with the concurrence of the student or students involved, some cases, though reported to the OSA, may be resolved within the confines of the course and department. The instructor has the authority to adjust the offender's grades as deemed appropriate, including assigning an F to the assignment or exercise or, in more serious cases, an F to the student for the entire course." (Taken from the QCC Academic Integrity Policy, 2/14/2005.)

Attendance/Absence Policy

Attendance will be taken at every class. The Student Handbook states that you will be considered excessively absent from a course and will receive a WU grade if you have been absent for 15% or more of the total number of contact hours for your course. If there is a laboratory component to your course, you will be considered excessively absent if you miss 15% or more of **either component**.

A WU is computed as an F in your GPA.

Students who have valid excuses for missed classes should speak with their instructor and present documentation explaining the reason for the absence.

CH-252: ORGANIC CHEMISTRY II

- **If your class meets twice per week:** you will receive a grade of WU if you have a **total of 7 or more** excused and/or unexcused absences.
- **For any lecture that meets only once per week,** you will receive a grade of WU if you have a **total of 4 or more** excused and/or unexcused absences.

Laboratory Policy

You must earn a passing grade in the laboratory in order to pass the course. (A WU grade will be considered an F.) For every lab that meets only once per week, you will receive a grade of WU if you have a **total of 4 or more** excused and/or unexcused absences.

There are no make-up sessions for missed labs. Missed labs that are unexcused will be assigned a grade of zero. For excused absences, the lab average will be calculated from the experiments that you performed. Students who arrive to the lab after the pre-lab lecture will not be allowed to participate and will be considered absent. A full lab report is required for each of the experiments performed and is due the next class period. Late reports are not accepted unless it is due to an absence. The format of the report will be explained by the lab instructor during the first week of the course. Additional information will be distributed by the lab instructor.

Required attire: Students **MUST** wear safety goggles in the lab at all times. Failure to do so may lead to their expulsion from the lab. Sandals or open-shoes, untied long hair, and any type of food or beverage in the lab are forbidden.

CH-252: ORGANIC CHEMISTRY II

<u>CHAPTER</u>	<u>TOPIC</u>	<u>HOURS</u>
14	Benzene and Aromaticity	6
15	Reactions of Aromatic Compounds	6
9	Spectroscopy: IR, NMR, UV	6
12	Alcohols; phenols; ethers; Organosulfur Chemistry	6
18	Carboxylic acids & derivatives	6
23	Lipids	2
16, 17 19	Aldehydes and ketones; carbanion chemistry; dicarbonyl compounds	10 2
20	Amines	4
22	Carbohydrates	4
24	Aminoacids and proteins	4

The approximate hours per chapter are guidelines and are at the discretion of the instructor. The instructor is responsible for making assignments and scheduling examinations. The Final Exam date is scheduled by the Registrar.

CH-252: ORGANIC CHEMISTRY II

LABORATORY SCHEDULE

<u>WEEK</u>	<u>TOPIC</u>	<u>EXPERIMENT</u>	<u>PAGE</u>
1	Check-in; Introduction to Organic Chemistry II Lab	----	
2	Nitration of Bromobenzene	15.1	188
3	Synthesis of 2,4-Dinitrophenyl aniline	15.3	195
4	The Grignard Reaction (Part 1)	14.1	175
5	The Grignard Reaction (Part II)	14.1	175
6	Oxidation of Cyclohexanol to Cyclohexanone	17.1	223
7	Qualitative Tests for Alcohols	14.2	180
8	Equivalent Weight of Organic Acids Hydrolysis of Benzonitrile	16.1 16.2	204 211
9	Synthesis of Aspirin Saponification of an Ester	16.3 16.6	214 221
10	Imides: Synthesis of N-phenylphthalimide	16.5	219
11	Qualitative Tests for Aldehydes and Ketones [parts (i), (ii)-a, (iii)]	17.5	234
12	The Aldol Condensation: Synthesis of Dibenzalacetone - Michael addition	18.1 18.3	243 249
13	Synthesis of Acetanilide Azodye Formation	19.2 19.3	255 258
14	ACS Test and Check-out		