QUEENSBOROUGH COMMUNITY COLLEGE

CHEMISTRY DEPARTMENT

COURSE OUTLINE

CH-251 **ORGANIC CHEMISTRY I**

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

Pre-requisites: CH-151 and 152

Course Description:
The relationship between structure and properties of organic compounds are discussed, with emphasis on reaction mechanisms, stereochemistry, and synthesis. Laboratory work involves preparation, isolation, and identification of organic compounds.

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 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 gradually and logically develop the relationship between properties and structure of organic compounds. Both aliphatic and aromatic compounds are discussed with emphasis on stereochemistry and mechanisms. In the laboratory, the student is introduced to the basic techniques involved in the preparation, isolation, and identification of organic compounds.

Texts: ORGANIC CHEMISTRY, 7TH EDITION, L. G. Wade, Pearson,
ISBN #: 0321623525
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

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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 can not 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. Absences that have been excused by the instructor will not be counted toward a WU grade.

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- **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.

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CHAPTER	TOPIC	HOURS
1	Introduction and Review	3
2	Structure and Properties of Organic Molecules	3
3	Structure and Stereochemistry of Alkanes	5
4	The Study of Chemical Reactions	4
5	Stereochemistry	5
6	Alkyl Halides: Nucleophilic Substitution and Elimination	6
7	Structure and Synthesis of Alkenes	5
8	Reactions of Alkenes	5
9	Alkynes	3
10	Structure and Synthesis of Alcohols	4
11	Reactions of Alcohols	3
14	Ethers, Epoxides, and Sulfides	4
15	Conjugated Systems	2

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.

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LABORATORY SCHEDULE

WEEK	EXPERIMENT TITLE	EXPT. #	Page#
1	Check-in; Lab Techniques; Safety Video	--	
2	Melting Points	3.1	21
3	Distillation - Simple and Fractional	4.1 & 4.2	31, 32
4	Steam Distillation	4.3	38
5	Separation by Extraction	6.2	64
	Recrystallization of a Solid	6.3	69
6	Distribution coefficient	6.1	56
7	Equilibrium Constant	7	80
8	Alkenes - Synthesis of Cyclohexene	10.1	125
9	Synthesis of t-Butyl Chloride	13.1	152
10	The Pinacol Rearrangement	17.4	232
11	Solvolysis of t-Butyl Chloride: A Kinetic Study	13.2	156
12	Alkynes - Synthesis and Reaction of Acetylene	11	143
	The Diels-Alder Reaction	12	149
13	Structural, Solvent & Temperature effects on nucleophilic substitution reactions (Part I, II, III)	13.3	164
14	CHECK-OUT		