QUEENSBOROUGH COMMUNITY COLLEGE
CHEMISTRY DEPARTMENT

CH-121 FUNDAMENTALS OF CHEMISTRY LABORATORY

PREREQUISITE / CO-REQUISITE: CH 120

LABORATORY: 2 Hours **CREDITS:** 1

LAB MANUAL: **FUNDAMENTALS OF LABORATORY CHEMISTRY**
P. Wong, P. Irigoyen, S. Svoronos, P. Svoronos
Pearson Custom Publishing
4th EDITION ISBN 0-536-83431-8

COURSE DESCRIPTION:

The course is intended to provide students with basic knowledge of modern experimental chemistry. The course introduces the most essential experimental techniques of general chemistry. The experiments performed include Density determination; Melting and Boiling Points measurements; Separation of substances by chromatography; Chemical reactions and equilibrium; Electrical conductivity of solutions; Acid-Base chemistry: pH analysis and titration; Nuclear Chemistry: radioactivity.

CURRICULA FOR WHICH THE COURSE IS REQUIRED / RECOMMENDED:

- A.A. or B.A. in Liberal Arts and Sciences (non-science concentration) and other non-science majors as a laboratory science elective (together with CH 120).
- A.A./B.A. QCC/QC Dual/Joint Degree Program in Liberal Arts and Sciences and Childhood Education as a laboratory science elective (together with CH 120).

GENERAL EDUCATIONAL OBJECTIVES:

- To develop critical thinking and understanding of scientific laws and concepts.
- To develop the ability to use reasoning and logic to solve problems in science.
- To sharpen basic mathematics needed to solve these problems.
- To apply the scientific method to scientific inquiry.
- To acquire writing skills to communicate this experience.

SPECIFIC COURSE OBJECTIVES / EXPECTED STUDENT LEARNING OUTCOMES:

- To expose non-science majors to fundamental experimental techniques in chemistry.
- To sharpen the abilities to solve both qualitative and quantitative problems in chemistry.
- To motivate students and increase their awareness of the significance of chemistry in society.

METHODS BY WHICH STUDENT LEARNING WILL BE EVALUATED:

The overall course grade will be computed using the following general distribution:

- Attendance and in-class participation.
- Performance of experiments.
- Written laboratory reports submitted on time.

Students need to achieve a passing grade in each of the above categories in order to pass the course. The grade distribution will be determined by the individual instructor.

NOTE: The mandatory ACS assessment examination will be given during the last laboratory class. However, 10% of the score on this test **will be added to students' final average in CH-120** (which is a separate lecture course with a separate grade). The instructor will provide additional details.

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ATTENDANCE/ABSENCE POLICY:

Students will receive a grade of WU if they have **4 or more** excused/unexcused absences. There will be no make-up sessions for missed laboratory classes. Missed classes that are unexcused absences will be assigned a grade of zero. For excused absences the laboratory average will be calculated from the experiments performed. Students who arrive to the laboratory after the pre-laboratory lecture will not be allowed to participate and will be considered absent.

A full laboratory report is required for each of the experiments performed and is due the next class period. Late reports will not be accepted except in the case of absences. The format of the report and any additional information will be explained by the laboratory instructor during the first week of the course.

REQUIRED ATTIRE:

Students MUST wear safety goggles in the laboratory at all times. Failure to do so may lead to their expulsion from the laboratory and failure of the laboratory class. Unacceptable attire include: sandals or open-shoes, shorts and tops exposing midriff, and untied long hair. In addition, any type of food or beverage is forbidden in the laboratory.

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” (Adopted from the QCC Academic Integrity Policy, 2/14/2005).

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES:

As stated in the current college catalog, any student who needs specific accommodations based upon the impact of a disability should register with the office of Services for Students with Disabilities (SSD) to be eligible for accommodations which are determined on an individual basis. The SSD office is located in the Science Building, room S132 (718-631-6257). Students should also contact their instructor privately to discuss their specific needs.

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Wk. #	Expt. #	Experiment Title
1	1	Safety in the Laboratory
2	2	Separation of the Components of a Mixture
3	3	Properties of Substances, Density
4	4	Effect of Temperature on Substances, Change of State - Boiling and Melting Points
5	5	Properties of Natural Radioactivity
6	6	Empirical Formula of a Magnesium-Oxygen Compound
7	7	Water of Hydration
8	8	Lewis Structures, the VSEPR Theory and Molecular Geometry
9	10	Electrical Conductivity of Solutions
10	11	Qualitative Analysis: Identification of Common Ions
11	14	Determination of Molecular Weight of a Volatile Liquid
12	12	Chemical Equilibrium and LeChatelier's Principle
13	13	A Neutralization Reaction: Acid Content in Vinegar
14		Check-out- ACS test