

QUEENSBOROUGH COMMUNITY COLLEGE

CHEMISTRY DEPARTMENT

CH-127

INTRODUCTORY COLLEGE CHEMISTRY

PREREQUISITES:

None

LECTURE:

3 hrs/wk

LAB: 3 hrs/wk

CREDITS: 4.5

TEXTBOOK:

Fundamentals of General, Organic, and Biological Chemistry
John McMurry and Mary E. Castellion,
Prentice Hall; 5th Edition; ISBN: 0-536-22040-9
Textbook package includes a Study Guide, Solutions Manual,
Virtual Chemistry Lab Software and an online access code.

LAB MANUAL:

Introductory College Chemistry Laboratory Experiments,
Irina Rutenburg, Paris Svoronos, Pedro Irigoyen
Kendall/Hunt Publishing Company, 2nd Edition;
ISBN: 0-7575-2968-2

COURSE DESCRIPTION: This course is the first semester of a two semester sequence. The first semester is intended to provide students with basic knowledge of modern theory of general chemistry; while the second semester introduces organic chemistry. The course covers the most essential topics of general chemistry for health professions. Topics include elements and compounds; chemical bonding and chemical reactions; properties of solutions and chemical equilibrium; acid-base chemistry; physical states and gas laws; intra and inter – molecular forces.

CURRICULA FOR WHICH THE COURSE IS REQUIRED/RECOMMENDED:

- B.S. or B.A. in Allied Health Professions, Nursing, and Nutrition;
- A.S in Health Sciences
- A.A. in Liberal Arts and Sciences (non-science concentration) and other non-science majors as a laboratory science elective.

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 and applied fields.
- To learn basic mathematics needed to solve these problems.
- To apply the scientific method to scientific inquiry.
- To acquire writing skills to communicate this experience.

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SPECIFIC COURSE OBJECTIVES / EXPECTED STUDENT LEARNING OUTCOMES:

- To develop both an understanding and a working knowledge of the theoretical and descriptive concepts of chemistry used in the elucidation of the complex chemistry of the body.
- To develop the abilities to solve both qualitative and quantitative problems in chemistry and health related fields.
- To learn fundamental experimental techniques used in health related chemistry and to effectively communicate experimental findings using writing.

METHODS BY WHICH STUDENTS LEARNING WILL BE EVALUATED:

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

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

This distribution may be changed at the discretion of the individual instructor.

Aside from the above, students are mandated to take the American Chemical Society (ACS) assessment test which will be administered during the last (check-out) laboratory period (week 14) and 10% of that grade will be added to the students' final course grade

ATTENDANCE/ABSENCE POLICY:

Attendance will be taken at every class. The Student Handbook states that a student will be considered excessively absent from a course and will receive a WU grade if the student has been absent for 15% or more of the total number of contact hours for the course. If there is a laboratory component to a course, a student will be considered excessively absent if the student misses 15% or more of **either component**. A WU is computed as an F in the student's 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.

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

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LABORATORY ATTENDANCE/ABSENCE POLICY:

Students must earn a passing grade in the laboratory in order to pass the course. (A WU grade will be considered an F). For every laboratory that meets only once per week, 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 FOR THE LABORATORY:

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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LECTURE SYLLABUS

TEXTBOOK: Fundamentals of General, Organic, and Biological CHEMISTRY
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5th Edition; Prentice Hall, ISBN: 0-536-22040-9

<u>CHAPTER</u>	<u>TOPIC</u>	<u>HOURS</u>
1	Matter, Energy, and Life (Introduction)	1
2	Measurements in Chemistry	4
3	Atoms and the Periodic Table	4
4	Ionic Compounds	4
5	Molecular Compounds	4
6	Chemical Reactions: Classification and Mass Relationships	4
7	Chemical Reactions: Energy, Rates, and Equilibrium	3
8	Gases, Liquids, and Solids	4
9	Solutions	4
10	Acids and Bases	4
11	Nuclear Chemistry	3
	3 Class Exams	3

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

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Irina Rutenburg, Paris Svoronos, Pedro Irigoyen
Kendall/Hunt Publishing Company, 2nd Edition;
ISBN: 0-7575-2968-2

<u>WEEK</u>	<u>EXPERIMENT TITLE</u>	<u>EXPT. #</u>
1	Check-in, Safety Movie and Discussion	
2	Chromatography	3
3	Physical Properties of a Substance: Density	1
4	Formula of a hydrated Salt	4
5	Physical Properties of a Substance: Melting and Boiling Points	2
6	Chemical Properties of a Substance: Chemical Reactions	5
7	Molar Mass of a Volatile Liquid (referred to as "gas" in manual)	7
8	Electrical Conductivity of Aqueous Solutions: Electrolytes and Non-electrolytes	6
9	Determination of a Solution's Concentration by UV-Visible Spectrophotometry	8
10	pH Determination of Solutions	9
11	Determination of a Solution's Concentration by Titration	10
12	Qualitative Analysis	13
13	Nuclear Chemistry: Radioactivity	12
14	Check-out, ACS Assessment Test	