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
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COURSE DESCRIPTION:
The course is intended to provide students with basic knowledge of modern experimental chemistry. The course demonstrates many of the concepts covered in CH-120 and introduces the most essential experimental techniques of general chemistry, including density determination; melting and boiling points measurements; separations and chromatography; chemical reactions and stoichiometry; electrical conductivity of solutions; qualitative analysis; pH analysis; acid-base chemistry and titration.

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:
• Reason quantitatively and mathematically as required in their fields of interest and in everyday life
• Work collaboratively in diverse groups directed at accomplishing learning objectives

SPECIFIC COURSE OBJECTIVES / EXPECTED STUDENT LEARNING OUTCOMES:
• Organize and interpret data and use the data to draw conclusions
• Employ technology to collect, process, and present mathematical information
• Work in groups to accomplish learning tasks and reach common goals

METHODS BY WHICH STUDENT LEARNING WILL BE EVALUATED:
The overall course grade will be computed based on performance in the following areas:
• Attendance, participation, and performance: 30%
• Written laboratory reports submitted on time: 60%
• Laboratory final exam: 10%

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

The final exam will be given during the 14th week of laboratory class. This multiple choice exam will cover the various equipment and methods you have used during the semester, as well as major details of some of the experiments. Your instructor will provide additional details.
LABORATORY POLICY:

All lab policies will be explained in detail by your lab instructor.

Three (3) or more absences from the lab result in a grade of WU in the lab. The first and last lab meetings are mandatory and count against your total attendance.

There are no make-up sessions for missed labs. Policies regarding excused and unexcused absences will be explained by your lab instructor. Students who arrive after the pre-lab lecture may not participate and will be marked absent.

Students will demonstrate their preparedness for the lab by completing a pre-lab exercise that will be shown to the instructor. Students will work collaboratively in pairs on each experiment, but each student will write an individual lab report. The exact format for lab reports is found at the end of this document and your instructor will provide more information. The points assigned to lab reports will be determined by the individual instructor.

Safety in the lab is extremely important. Therefore, the ACS safety video must be viewed during the first lab session. A safety quiz must be taken and passed, and the safety declaration sheet must be signed. A student that shows up for the lab, but who has not seen the safety video and passed the quiz, will not be permitted to conduct the experiment, will be considered absent, and will receive a zero for the lab. There will be several additional showings of the safety video during the first three weeks of classes. A student who has not viewed the safety video and passed the quiz by the third lab session will have accumulated 3 absences in the lab and therefore will not be permitted to continue in the course. They may either withdraw or receive a WU for the course.

REQUIRED ATTIRE:

Students MUST wear safety goggles in the lab at all times. Shorts and short skirts, tank tops and cropped tops, sandals and open-toed shoes, untied long hair, and any type of food or beverage in the lab are forbidden. Students who fail to follow these rules will not be permitted to perform the experiment. They will be marked absent and will be given a zero for that lab.

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 S-132 (718-631-6257). Students should also contact their instructor privately to discuss their specific needs.
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<th>Wk. #</th>
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<td>Separation of the Components of a Mixture</td>
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CH-121: FUNDAMENTALS OF CHEMISTRY LABORATORY REPORT FORMAT

A lab report must be written after every experiment. You will usually have the same data as your partner, but your lab report is an independent assignment. You will be given a template to complete for each experiment. The pre-lab section must be completed before class and shown to your instructor. The rest will be completed as you perform the experiment and will later help you write your lab report. Each report will be due one week after the experiment is performed. Late assignments may be accepted at the discretion of your instructor and a penalty may be applied to your grade.

Typed lab reports are strongly encouraged. Please use the following format. You lab instructor will inform you of their own additional instructions and requirements.

1. Your name and name of lab partner
2. Title of experiment and date performed
3. Objective
   In 1-2 sentences, explain your primary goals and how you will achieve them. Use general terms, referring to techniques or methods, rather than describing specific procedures.
4. Introduction/Theory
   Briefly describe the scientific principle behind the experiment. It may be based on the material in the lab manual, your text book, or other sources (include citations). Include relevant chemical reactions - this is a chemistry class!
5. List of materials and equipment
6. Summary of procedure and observations
   Describe the experimental procedure in your own terms. Do not simply re-copy the steps from the manual. Be sure to describe only what you actually did, including any changes made to the procedure. If choices were possible, only indicate which one you made and explain why. Use the past tense and avoid the first person voice (I, we, us). Also include your observations such as color changes, release of vapor, etc. Diagrams are not required, but may be helpful.
7. Data and calculations
   The lab manual provides sheets for data and results, which you should tear out and include in your lab report. Calculations must be neatly worked out and clearly labeled so they can be checked and given appropriate partial credit.
8. Conclusions and Sources of Error
   Describe if and how the experimental objectives were met, and what scientific principles were investigated. Explain how your measurements are related to each other and your objective, and how they led to your results. You should always summarize your final results. When identifying an unknown, describe how you made this decision. You must also describe what could have led to incorrect or inaccurate results in this experiment, as well as steps that could be taken to prevent or correct the problems. This is different than a mistake or failure to follow instructions. Consider flaws in the experimental setup or assumptions that have been made.
9. Questions
   Most experiments have a set of questions to answer or problems to solve. You must complete this section and turn it in as part of your final lab report.

The complete report will consist of the sections you have written, the data and question sheets, and the template sheet you completed during the experiment. Please attach them all together.