INSTRUCTOR
Name: Samar Sadek-Hajj
Extension: 3978
E-mail: ss05@aub.edu.lb
Office Hours: Monday, 12:00-1:00
           Thursday, 11:00-12:00

MEETING TIMES
Laboratory Lecture:
Monday 1:00-1:50 Room 322 Chemistry Building
Laboratory Session:
Thursday 2:00-5:00 Room 105 Chemistry Building

REFERENCES AND RESOURCES
Manual: A Laboratory manual that can be purchased from Main Chemistry Office (Room 102).
Moodle: Moodle Course ID is CHEM 102L_ss05
The syllabus, handouts, basic lecture notes (PowerPoint presentations), assignments, report forms and other course-related materials, in addition to announcements pertaining to the course will be posted on Moodle.

CATALOGUE DESCRIPTION
CHEM 102L General Chemistry Laboratory II 1.3; 1cr. A laboratory course to accompany CHEM 102. The experiments explore some of the fundamental concepts which deal with physical properties of solutions, chemical equilibrium, acids and bases, solubility equilibria, kinetics and electrochemistry. Pre- or co-requisite: CHEM 102 and Pre-requisite: CHEM 101L. Each semester.
GENERAL INSTRUCTIONAL OBJECTIVES
By the end of the semester, students will:

1. know the Laboratory Safety Regulations,
2. know how to use modern computer based techniques in addition to basic laboratory equipment and measurement systems,
3. apply basic chemistry principles in the laboratory,
4. judge the value of practical numerical data and experimental chemical results,
5. learn how to solve quantitative and qualitative problems related to course material,
6. be able to explain some chemical phenomena and applications in everyday life in context of the learned chemical principles and the performed experiments.

SPECIFIC LEARNING OUTCOMES
After completing Chemistry 102 laboratory, students will be able to:

1. apply the General Rules for working in the laboratory,
2. utilize the technique of
   2.1 correctly handling glassware and operating simple machines (spectrophotometer, voltmeter, centrifuging machine, balance…)
   2.2 operating a computer program designed to measure a variable in function of another,
3. conduct experiments to translate theoretical principles into practical applications
   3.1 carry out experiments on Conductivity, Colligative properties, Chemical equilibrium, Acids and Bases, Spectrophotometry, Electrochemistry, and Kinetics,
   3.2 perform a series of chemical reactions based on observational skills,
4. write reports reflecting the relation between theoretical concepts and experimental data,
5. get valuable numerical results and reliable qualitative determinations from experimentally related exercises,
6. understand some common phenomena based on the learned techniques.

STUDENT ASSESSMENT
Student performance is assessed based on the following grading scheme:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentile</th>
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<tbody>
<tr>
<td>Pre-Laboratory Assignments</td>
<td>10 %</td>
</tr>
<tr>
<td>Laboratory Reports</td>
<td>30 %</td>
</tr>
<tr>
<td>Drop Quizzes</td>
<td>15 %</td>
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<tr>
<td>Evaluation of Student Conduct</td>
<td>10 %</td>
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<tr>
<td>Comprehensive Final Examination</td>
<td>35 %</td>
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</tbody>
</table>
COURSE CALENDAR

<table>
<thead>
<tr>
<th>Title of Experiment</th>
<th>Lab Lecture</th>
<th>Lab Session</th>
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<tbody>
<tr>
<td>Introduction Check in</td>
<td>September 9</td>
<td>September 12</td>
</tr>
<tr>
<td>Expt. 1 Conductivity of Strong and Weak electrolytes</td>
<td>September 16</td>
<td>September 19</td>
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<tr>
<td>Expt. 2 Colligative Properties</td>
<td>September 23</td>
<td>September 26</td>
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<tr>
<td>Expt. 3 Chemical Equilibrium</td>
<td>September 30</td>
<td>October 3</td>
</tr>
<tr>
<td>Expt. 4 Analysis of Vinegar and Antacids</td>
<td>October 7</td>
<td>October 10</td>
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<tr>
<td>No Lecture &amp; No Lab (Al Adha Holiday)</td>
<td>October 14</td>
<td>October 17</td>
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<tr>
<td>Expt. 5 pH of Aqueous Solutions</td>
<td>October 21</td>
<td>October 24</td>
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<tr>
<td>Expt. 6 Potentiometric Titration</td>
<td>October 28</td>
<td>October 31</td>
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<tr>
<td>No Lecture &amp; No Lab (Hijra New Year Holiday)</td>
<td>November 4</td>
<td>November 7</td>
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<tr>
<td>Expt. 7 Determination of the Solubility Product</td>
<td>November 11</td>
<td>November 14</td>
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<tr>
<td>Expt. 8 Electrochemistry</td>
<td>November 18</td>
<td>November 21</td>
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<tr>
<td>Expt. 9 Chemical Kinetics: The Iodine Clock Reaction</td>
<td>November 25</td>
<td>November 28</td>
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<tr>
<td>Make ups Check out</td>
<td>-</td>
<td>December 5</td>
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DATE & PLACE OF FINAL EXAMINATION
Final Exam: Monday, December 9, 2013 @ 1:00p.m. in Room 500 Nicely.

COURSE POLICY

PRE-LABORATORY ASSIGNMENTS: The pre-laboratory assignment for a given experiment consists of a couple of questions about the experiment. It will be available on moodle just after the laboratory lecture. Students must download the assignment, answer the questions and hand it in at the beginning of their laboratory session. Students are expected to submit their assignments on time. Late assignments will not be accepted.

LABORATORY REPORTS: A laboratory report is required for each experiment. Some experiments are performed as a group work, yet every student should submit his/her own report. The report form for each experiment is posted on moodle. Students must download it, familiarize themselves with its content and get any needed theoretical values, if applicable, for the experiment. They should enter the collected experimental data/observations directly in the report while performing the experiment, complete it, and submit it at the end of the laboratory session. Reports are expected to be neat and attractive in appearance. They should be complete. All appropriate subject matter should be included.

DROP QUIZZES & FINAL EXAMINATION: A 10-minute quiz might be given at the beginning of the laboratory session. This will be considered as a drop quiz, DQ. The drop quiz questions are related to the current experiment. Coming late to the laboratory will deprive the student from the quiz and result in a missing grade. No make-up quizzes will be given. Students will sit for a laboratory final exam. They are urged to take this exam on the assigned time. The final exam is scheduled on Monday, December 9, 2013 @ 1:00p.m. in Room 500 Nicely.
**EVALUATION OF STUDENT CONDUCT:** At the end of the semester, each student will be evaluated by his/her laboratory Instructor based on his/her conduct and behavior in the laboratory. The Instructor will be observing the student during the laboratory sessions throughout the semester, and will then be able to grade the student performance according to some criteria described in the attached checklist, (see attachment: Student Performance Checklist).

**ATTENDANCE & MAKE-UPS:**
Students must attend all laboratory lectures and sessions. If more than two laboratory sessions are missed, students may be asked to withdraw. A make-up for one experiment only is allowed. Students can make up a missed laboratory session only upon presenting a valid excuse (an official medical report from the university infirmary); otherwise, zero grade will be given for the missed work. No Make-up drop quizzes will be given.

**LABORATORY SAFETY:**
Students are required to carefully read and understand the safety rules mentioned in the Manual and those circulated by the Environmental Health, Safety, and Risk Management Center at AUB and abide by them. They must strictly abide by the dress code mentioned (long lab. coat, closed shoes and no ballerinas, shorts, or skirts); otherwise, they will not be allowed to perform the experiment or to make it up later. Violation of the mentioned rules and regulations will result in expulsion from the lab. and a grade of zero on the current experiment.

**LABORATORY WORK REGULATIONS:**
*Check in/Check out:* In the first lab session each student will be assigned a locker that contains glassware. It is the student’s responsibility to exercise the greatest care in looking after the contents of his/her locker. Breakages and missed items will be charged to the student’s account at the end of the semester.

*In each lab session, you are required to:*
- Have your lab manual, the cabinet key and a calculator.
- Come on time, drop quizzes are given at the beginning of each lab session.
- Wear a white gown, safety goggles, and gloves.
- Bring soap, detergent, sponge, towel (paper or cloth), and matches.
- Know the safety rules and regulations, and abide by them.
- Come prepared to the lab, read the experiment and prepare an outline of the procedure to be followed.
- Answer the assigned pre-lab questions before coming to the lab.

*At the end of each lab session, you are required to:*
- Show your results to the instructor to get their approval
- Hand in your report.
- Clean any used equipment thoroughly.
- Return to the storeroom all items borrowed on that day.
- Clean their bench top, and the sink next to you.
- Make sure that the water, steam and gas are turned off.
- Lock your desk.
**LAB CONDUCT:**

- Eating, drinking, chewing and smoking are strictly forbidden in the lab.
- All chemicals and water spilled on the benches should be wiped immediately.
- Side benches should be kept clean at all times, and reagent bottles should be kept closed when not in use.
- Matches, paper, broken glass and any other solid wastes should be disposed of in the proper waste containers, and not in the sink!
- **Organic** waste and solutions containing *heavy metal ions* should be disposed of in special labeled containers do **not** pour them in the sink!
- To prevent contamination of reagent bottles, do **not** insert any droppers or spatulas into them. **Never** return unused chemicals (solids or liquids) to the reagent bottle.

**ACADEMIC INTEGRITY**

Dishonesty of any kind is not tolerated. Cheating and plagiarism are violations of the University’s academic regulations and are subject to disciplinary action. Cheating on any activity will result in a grade of zero for that activity.

Please refer to the Student Handbook 2012-2013 and check the pertaining sections to familiarize yourself with the Student Conduct Principles and Policies as set by the University or to AUB policies and procedures on academic integrity using the following link:

American University of Beirut
Faculty of Arts & Sciences
Department of Chemistry

CHEMISTRY 102L
GENERAL CHEMISTRY LABORATORY II

STUDENT PERFORMANCE CHECKLIST

Students are expected to well behave during the lectures and in the laboratory. Misconduct will reflect on their evaluation.
Students must read and prepare each experiment before entering the laboratory. They will be asked individually, in pairs and/or in groups to respond to the material they have prepared. Students’ performance will be assessed based on the following checklist:

<table>
<thead>
<tr>
<th>Student Performance</th>
<th>Observed</th>
<th>Not Observed</th>
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<tbody>
<tr>
<td><strong>Attendance:</strong> The student attends the lab sessions regularly.</td>
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<td><strong>Punctuality:</strong> The student comes to the lab on time.</td>
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<tr>
<td><strong>Appearance:</strong> The student has an appearance that conforms to the regulations set by the Safety Center (lab gown, goggles…)</td>
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<tr>
<td><strong>Safety Rules:</strong> The student understands, applies and abides by the safety regulations.</td>
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<td><strong>Preparation:</strong> The student is always well prepared and reads the experiment before entering the lab.</td>
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<tr>
<td><strong>Work:</strong> The student adheres to the instructions given by the lab instructor and works in the lab attentively.</td>
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<tr>
<td><strong>Time:</strong> the student uses his/her time efficiently in the lab, performs all the parts of the experiment and submits the report on time.</td>
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<tr>
<td><strong>Discipline:</strong> The student respects the lab instructor, and maintains discipline and order during the lab session.</td>
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<td><strong>Language:</strong> The student uses the English language in the lab.</td>
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<tr>
<td><strong>Cleanliness:</strong> The student keeps his/her bench clean and organized during the session, and returns all borrowed items at the end of the session.</td>
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<tr>
<td><strong>Responsibility:</strong> The student reports any problem or incident promptly to the lab instructor.</td>
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Other Comments:  

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