

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

**CHEM 101L**  
**General Chemistry I Laboratory (1.3; 1cr.)**  
Course Syllabus  
Spring 2017-2018

**LECTURER**

Dr. Mary Mrad      Room Chem. 312  
Ext. 3968  
[mm208@aub.edu.lb](mailto:mm208@aub.edu.lb)  
[dr.mrad-mary@hotmail.com](mailto:dr.mrad-mary@hotmail.com)

**MEETING TIMES**

Lab Lecture	Lab Session	Section	Lab Room
Thursday 11:00-11:50 am Chemistry dep. Room: 001	1-3:59 pm Monday	1	205Chem
	1- 3:59 pm Thursday	2	205Chem

**CATALOGUE COURSE DESCRIPTION:**

**CHEM 101L General Chemistry Laboratory I (1.3; 1cr.):** A laboratory course to accompany CHEM 101. The experiments explore some of the fundamental concepts which deal with measurements, Empirical formula and Avogadro's number, percent composition by mass, limiting reactant, chemical reactions and acid rain, acid-base titration, the gas laws and the ideal gas law, calorimetry, aluminum analysis.

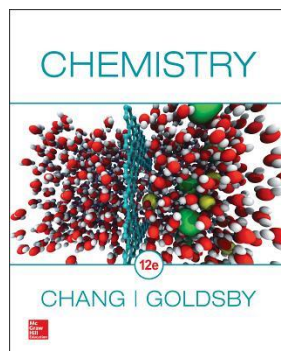
## Chem 101L Tentative Lab Schedule

<u>Lab Lecture</u>	<u>Lab Sessions</u>	
Thursday	Monday	Thursday
<u>Feb. 1</u> <b>Introduction, Syllabus and Safety</b>	<b>Jan. 29</b> <i>No Labs</i>	<b>Feb1</b> <i>No Labs</i>
<u>Feb. 8</u> <b>Experiment 1: Measurement</b>	<b>Feb5</b> <i>No Labs</i>	<b>Feb8</b> <i>No Labs</i>
<u>Feb. 15</u> <b>Experiment 2: Empirical Formula &amp; Avogadro's number</b>	<b>Feb12 (Exp 1)</b>	<b>Feb15 (Exp 1)</b>
<u>Feb. 22</u> <b>Experiment 3: Percent Composition by mass</b>	<b>Feb19 (Exp 2)</b>	<b>Feb22 (Exp 2)</b>
<u>March 1</u> <b>Experiment 4: Limiting Reactant</b>	<b>Feb26 (Exp 3)</b>	<b>March 1 (Exp 3)</b>
<u>March 8</u> <b>Experiment 5: Chemical Reactions and Acid Rain</b>	<b>March 5(Exp 4)</b>	<b>March8 (Exp 4)</b>
<u>March 15</u> <b>Experiment 6: Acid-Base titration</b>	<b>March 12(Exp 5)</b>	<b>March 15 (Exp 5)</b>
<u>March 22</u> <b>Experiment 7: The Gas Laws and the Ideal Gas Law</b>	<b>March 19(Exp 6)</b>	<b>March 22(Exp 6)</b>
<u>April 12</u> <b>Experiment 8: Calorimetry</b> <i>(No Lab lectures on March 29 and April 5)</i>	<b>March 26(Exp 7)</b>	<b>March 29(Exp 7)</b>
<b><u>No Labs weeks of April 2 and April 9</u></b>		
<u>April 19</u> <b>Experiment 9: Aluminium Analysis</b>	<b>April 16 (Exp 8)</b>	<b>April 19(Exp 8)</b>
<u>April 26</u> <i>No lecture</i>	<b>April 23 (Exp 9)</b>	<b>April 26 (Exp 9)</b>
<u>May 3</u> <i>No lecture</i>	<b>April 30</b> <i>Make ups &amp; Check out</i>	<b>May 3</b> <i>Make ups &amp; Check out</i>
<b>Final Exam (will be scheduled)</b>		

## REFERENCES AND RESOURCES

**Laboratory Manual** that can be downloaded from Moodle

**Textbook:** Raymond Chang, Chemistry, 12<sup>th</sup> Edition, McGraw-Hill, 2016.



**Moodle Course:** All course material including lectures (PowerPoint presentations), pre-lab assignments, report formats and any other relevant information will be posted on Moodle. You are expected to check your Moodle on a regular basis for assignments, announcements, important dates and deadlines.

## COURSE OBJECTIVES

**This course aims to:**

- Foster student's interest in chemistry as an experimentally based subject.
- Introduce students to a range of laboratory skills and introductory techniques including modern computer based experiments.
- Explore, investigate, and apply some of the chemical principles and concepts studied in general chemistry.
- Develop an understanding of the implications and relevance of chemistry in everyday life.

## LEARNING OUTCOMES

Upon completion of the course, students will be able to:

1. Apply basic laboratory skills and proper introductory experimental techniques.
2. Handle chemicals carefully and responsibly with rigorous adherence to safety rules.
3. Use glassware and simple equipment properly and safely.
4. Collect reliable and reproducible data while following the experimental procedure carefully.
5. Present data obtained from scientific measurement in an organized format and correctly, with the right precision.

- Analyze experimental observation and/or collected data to present logical interpretations and to draw reasonable conclusions.
- Predict reliable quantitative and/or qualitative determinations from experimentally related exercises.
- Explain real chemical phenomena in our daily life based on the knowledge acquired from the learned chemical principles and the performed experiments.
- Apply the learned techniques and concepts to devise simple chemical tests and experiments.

## GRADING SCHEME

Activity	Percentage
Pre-lab Assignments	10%
Reports	30%
Quizzes	15%
Evaluation	10%
Lab Final Exam	35%

**Pre-lab Assignments:** The pre-laboratory assignment for a given experiment consists of some 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. Late assignments will not be accepted.

**Lab Reports:** Lab reports are required for each experiment; they are due at the end of the lab session. The report form for each experiment is posted on moodle. Students must download it and familiarize themselves with its content. 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.

**Quizzes:** A 10-minute quiz is given at the beginning of each lab session; quizzes include questions on the current experiment. Coming late to the laboratory will deprive the student from the quiz and result in a **ZERO** grade. No make-up quizzes will be given.

**Instructor's Evaluation:** At the end of the semester, each student will be evaluated by the laboratory Instructor based on his/her attendance at lectures and lab sessions, preparation for the experiment, ability to follow: instructions, laboratory procedures and safety rules and on your behavior, attitude, skills and overall performance..

**Lab Final Exam:** The final exam is written.

## COURSE POLICY

### LAB SESSIONS

**Check in/Check out:** In the first lab session you will be assigned a locker that contains glassware. Breakages and missed items will be charged to your account at the end of the semester.

***In each lab session, you are required to:***

1. Have your lab manual and calculator.
2. Come on time, drop quizzes are given at the beginning of each lab session.
3. **Wear a white gown, safety goggles, and gloves.**
4. Bring **soap, detergent, sponge, a towel and matches.**
5. Know the safety rules and regulations, and abide by them.
6. Come prepared to the lab, read the experiment and **prepare an outline** of the procedure to be followed.
7. Answer the assigned pre-lab questions before coming to the lab.

***At the end of each lab session, you are required to:***

1. Show your results to the instructor to get their approval
2. Hand in your report.
3. Clean any used equipment thoroughly.
4. Return to the storeroom all items borrowed on that day.
5. Clean your bench top, and the sink next to you.
6. Make sure that the water and gas are turned off.
7. Lock your desk.

### LABCONDUCT

1. Eating, drinking, chewing and smoking are strictly forbidden in the lab.
2. All chemicals and water spilled on the benches should be wiped immediately.
3. Side benches should be kept clean at all times, and reagent bottles should be kept closed when not in use.
4. Matches, paper, broken glass and any other solid wastes should be disposed of in the proper waste containers, and not in the sink!
5. **Organic** waste and solutions containing **heavy metal ions** should be disposed of in special labeled containers do **not** pour them in the sink!
6. 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.

## LABORATORY SAFETY

Safety in the chemical laboratory is very important both for your own well-being as well as the wellbeing of others. Please obey safety instructions as mentioned in the syllabus, in the CHEM 101 manual and those issued by the Environmental Health and Safety center and your instructor.

You are expected to abide strictly by the appropriate dress code:

- White gown (long sleeved, knee length) skirts and shorts are **not** allowed.
- Safety goggles (provided) and gloves.
- Long hair should be tied back in a bun.
- Shoes that enclose the entire feet. Open-toed shoes, sandals, and ballerinas **not** allowed.

If you do not comply with the safety rules you will be asked to leave the lab and **no** make-up will be allowed.

**In case of an accident such as cuts, burns, etc.... Notify your lab instructor immediately!**  
*Cleanliness, tidiness and safe working in the lab are regarded as an essential part of a student's training in practical chemistry.*

## ATTENDANCE AND MAKE-UPS

1. You must attend all lab lectures and lab sessions.
2. Experiments will only be conducted on the assigned days.
3. Students can make up a missed laboratory on scheduled make-up days session only upon presenting a valid excuse (an official medical report from AUB infirmary). If **2 lab** sessions are missed, you will be asked to withdraw from the course.
4. **No** makeup quizzes will be given.

## ACADEMIC INTEGRITY

You are being graded on the work you perform. Dishonesty of any kind will **not** be tolerated in this course. The penalty for any form of academic dishonesty such as cheating on exams and quizzes or copying of reports is a grade of **zero**. Cheating is a violation of the university's academic regulations and is subject to disciplinary action.

Please refer to AUB policies and procedures on academic integrity.

<http://www.aub.edu.lb/pnp/generaluniversitypolicies/Documents/StudentCodeConduct/StudentCodeConduct.pdf>

AUB is committed to facilitating a learning environment that is free of all forms of prohibited discrimination. The University's non-discrimination policy and Title IX apply to, and protect, all students, faculty, and staff. Under Title IX, discrimination based on sex and gender, including sexual harassment, is prohibited. If you think you have experienced discrimination or

harassment, including sexual misconduct, we encourage you to tell someone promptly. If you speak to a faculty or staff member about an issue such as harassment, sexual violence, or discrimination, the information will be kept as private as possible, however, faculty and designated staff are required to bring it to the attention of the University's Title IX Coordinator. Faculty can refer you to fully confidential resources, and you can find information and contacts at [www.aub.edu.lb/titleix](http://www.aub.edu.lb/titleix). To report an incident, contact the University's Title IX Coordinator Trudi Hodges at 01-350000 ext. 2514, 03-595525, or [titleix@aub.edu.lb](mailto:titleix@aub.edu.lb) Confidential reports may be submitted anonymously online through EthicsPoint at [www.aub.ethicspoint.com](http://www.aub.ethicspoint.com).

If you are pregnant or planning to be pregnant, you should consult with your healthcare provider so you become fully informed of the potential risks and understand the precautions that you should take.