



Philadelphia University
Faculty of Science
Department of Basic Science & Mathematics
First Semester, 2017/2018

Course Syllabus

Course Title: General Chemistry laboratory	Course code: 0212102
Course Level: 1 st year	Course prerequisite (s) / Corequisite (s): 0212101
Lecture Time: (8:15-11:15 Wed.).	Credit hours: 1

Academic Staff Specifics

Name	Rank	Office Number and Location	Office Hours	E-mail Address
Khadeejah Al Abrouni	Lecturer	9212	10:00-11:00 (Sun-Tue-Thu) 10:30: 11:15 Wed	kabrouni@philadelphia.edu.jo

Course module description:

This course includes experimental study of Safety and laboratory rules, measurements and techniques in studying the matter; density, melting point, freezing point, stoichiometry, and determination of empirical formulas, qualitative analysis, volumetric analysis, and specific heat.

Course module objectives:

This course provides the student with the following skills in laboratory exercises.

Equipment/Instrumentation

- Use of volumetric glassware, including buret, pipet
- Cleaning glassware
- Use of Balance
- Use of pH meter
- Use of basic laboratory equipment

Safety and General Good Laboratory Practices

- Safe lab practices
- Proper handling of reagents
- Notebook skills (data acquisition and data handling)

Specific techniques

- Preparation of Solutions
- Titrations

Course/ module components

General Chemistry Sheets.

Teaching methods:

Lecture, lecture activities, laboratory experimentation, homework assignments, quizzes, and laboratory report assignments

Learning outcomes:

- **Knowledge and understanding**

Students will gain an understanding of:

- the use of an analytical balance for mass measurement
- the use of graduated cylinders, graduated pipettes, and volumetric pipettes for volumetric measurement
- the use of thermometers
- physical properties such as; density, melting point, freezing points
- titrations
- the methods for preparation solution
- the methods to measure concentrations of an acid-base

- **Cognitive skills (thinking and analysis).**

- Identify and solve problems in experiments.
- Work with given experimental information and handle basic calculations based on theory concepts.

- **Communication skills (personal and academic).**

- The student will learn professionalism, including the ability to work in teams and apply basic ethical principles.
- The student will develop the ability to effectively communicate scientific information and experimental results in written formats

- **Practical and subject specific skills (Transferable Skills).**

- Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems.
- Gaining knowledge and experience of working with relevant modern laboratory equipment.

Assessment instruments

- Quizzes.
- Midterm and final exam
- Lab work evaluation
- Lab Reports

Allocation of Marks	
Assessment Instruments	Mark
Mid- term examination	30
Final examination	40
Quizzes	10
Reports	10
Evaluation	10
Total	100

Course/module academic calendar

Experiment Number	Basic and support material to be covered Experiment Name	Week Numbers
1	Safety Rules & Laboratory Techniques	Week 2 (22-26)/10/2017
2	Techniques and Measurements	Week 3 (29/10)-(3/11)/2017
3	Formula of a Hydrate	Week 4 (5-10)/11/2017
4	Empirical Formula of Magnesium Chloride	Week 5 (12-16)/11/2017
5	Limiting Reactant	Week 6 (19-23)/11/2017
6	Properties of Solutions	Week 7 (26-30)/11/2017
	Midterm Exam
7	Ionization of Acids, Bases and Salts	Week 8 (10-14)/12/2017
8	Acid – Base titration	Week 9 (17-21)/12/2017
9	Determination of Acetic Acid in Vinegar	Week 10 (24-28)/10/2017
10	Back Titration for Calcium Carbonate	Week 11 (31/12/2017)-(4/1/2018
11	Specific Heat for Metals	Week 12 (7-11)/1/2018
12	Chemical Reactions: Single & Double Replacement	Week 13 (14-18)/1/2018
	Final Exam	-----

Expected workload:

On average students need to spend 1 hour of study and preparation for each experimental Lab.

Evaluation:

Evaluation will occur through the administration of assessment modes including: weekly quizzes, assessing overall preparation, midterm and final exams. Evaluation modes include the graded laboratory notebook, reports and technique performance. Technique performance includes assessment of safety practice

Attendance policy:

Absence from lectures and/or tutorials shall not exceed 15%. Students who exceed the 15% limit without a medical or emergency excuse acceptable to and approved by the Dean of the relevant college/faculty shall not be allowed to take the final examination and shall receive a mark of zero for the course. If the excuse is approved by the Dean, the student shall be considered to have withdrawn from the course

Module references

Books:

1. Title: General Chemistry, The essential concepts, 6th edition. Author: Raymond Chang. Publisher: Mc. Graw Hill 2011 ISBN: 978-007-131368-1
2. Title: Experiments in General Chemistry Featuring Measurement Guided Inquiry, Self Directed, and Capstone. Second Edition. Authors: Bobby Stanton (University of Georgia), Lin Zhu (Indiana University), Purdue (University at Indianapolis), Charles H. Atwood (University of Georgia)
3. Quantitative Chemical Analysis , By Daniel C. Harris, 7th edition 2007, W. H. Freeman and Company. ISBN 0716728818

Websites

- <http://101science.com/>

