



Philadelphia University
Faculty of Science
Department of Basic Science and
Mathematics
First Semester, (2019/2020)

Course syllabus

Course Title: Aanalytical Chemistry Laboratory	Course code:0212242
Course level: 2	Course prerequisite (s) and/or corequisite (s):0212241
Lecture time:	Credit hours:1
Mon. (8:15-11:15)am , Thu (13:10-16:00)pm	Location: Green House

Academic Staff Specifics				
Name	Rank	Office number and location	Office hours	E-mail address
Khadeejah Al Abrouni	Lecturer	Nursing building 9212	10-11 am Sun., Tue., Thur.	kabrouni@philadelphia.edu.jo
		Science building 1019	12-1 pm Sun., Tue., Thur. 10-11 am Mon., Wed.	

Course description

This course is an introduction to principles of analytical qualitative and quantitative analysis, methods expressing of the concentrations, principles of volumetric analysis, acid-base Equilibria in aqueous and in nonaqueous solutions, acid-base titration and their applications in both solutions. Also topics to be covered include different kinds of titrations such as redox, and precipitation titration, in addition, it examines some basic chromatographic separation techniques and spectrophotometric analysis.

Course module objectives :

- Develop the statistical and analytical skills of the students.
- Prepare the students to distinguish between qualitative and quantitative analysis. Provide a practical experience in the use of routine analytical equipment.
- Prepare students to quantitatively perform and interpret results from volumetric and gravimetric analysis.
- Improve the student's skills in the preparation of analytical solutions for quantitative analysis.
- Improve the written communication skills of students, by means of written reports and promote team skills through team group working.

Course/ module components Analytical Chemistry manual.

Teaching methods :Lectures, practical work, discussion groups, problem solving,etc.

Learning outcomes :

Knowledge and understanding

At the end of this module, student will be able to:

prepare analytical solutions with precision, accuracy and express its concentration in different units, as used in analytical laboratory.

Explain standardization procedures employed in volumetric analysis. Communicate the analytical results in appropriate fashion.

Cognitive skills (thinking and analysis.)

Through this practical course the students will be able to analyze the data they obtained, understanding the results and apply the techniques they have learned into different aspects.

Communication skills (personal and academic.)

Through team work, pre and post laboratory questions, and working sheets the students will be able to improve their communication skills through searching and discussing.

Practical and subject specific skills (Transferable Skills.)

All the techniques that the students have been learned during this practical course, can be used and applied in other courses, in their graduation projects, and also their practical working field.

Assessment instruments

Quizzes

Major and final exams

Home works

Reports

<u>Allocation of Marks</u>	
Assessment Instruments	Mark
Mid Term examination	30
Final examination	40
Reports, quizzes, Evaluation	30
Total	100

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.

Course/ academic calendar

Week		
(1)	Calibration of Volumetric Glassware	Solving working sheets and reports
(2)	Sampling and statistical treatment of data	Solving working sheets and reports Quiz
(3)	Neutralization titration in aqueous medium	Solving working sheets and reports Quiz
(4)	Preparation of buffer solution	Solving working sheets and reports
(5)	Precipitation titration (Argentometric)	Solving working sheets and reports Quiz
(6)	Midterm examination	
(7)	Redox titration (Iodine Titration)	Solving working sheets
(8)	Redox titration(permanganate titration)	Solving working sheets and reports Quiz
(9)	Complex metric titration using EDTA	Solving working sheets Quiz
(10)	Quantitative Analysis by spectroscopy	Solving working sheets and reports
(11)	Chromatography (Column,Size Exclusion)	Solving working sheets and reports

Expected workload:

On average students need to spend 2 hours of study and preparation for each lab.

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.

Text book/ books (title , author (s), publisher, year of publication)

Title:Fundamentals of Analytical Chemistry, 8th edition

Author: D.Skoog,D.West, F.Holler and S.Crouch.

Publisher:Thomson, Brooks/Cole 2004

ISBN:0-03-035523-0