

Philadelphia University	 PHILADELPHIA UNIVERSITY THE WAY TO THE FUTURE	Approved Date: 10/3/2022
Faculty: Pharmacy		Issue: 1
Department: -		Credit Hours: 2 (052112300), 3 (051012200)
Academic Year: 21/22		Course Syllabus

Course Information

Course No.	Course Title	Prerequisite
051012200 052112300	Pharmaceutical Analytical Chemistry	021210900
Course Type		Class Time
<input type="checkbox"/> University Requirement <input type="checkbox"/> Faculty Requirement <input type="checkbox"/> Major Requirement <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Compulsory		Sec.1 (051012200) S, T: 9:45-11:15 Sec.1 (052112300) S, T: 12:45-13:35 Sec.2 (052112300) M, W: 12:45-13:35 Sec.3 (052112300) M, W: 9:45-10:35
		Room No.
		6609 5508 6602 6602

Instructor Information

Name	Office No.	Phone No.	Office Hours	E-mail
Dr. Ahmad Najjar	P 516	2609	S,T, 11:15-12:00 M,W 11:15-12:00	a.najjar@philadelphia.edu.jo

Course Delivery Method

<input type="checkbox"/> Blended	<input type="checkbox"/> Online	<input checked="" type="checkbox"/> Physical
Learning Model		
Percentage	Synchronous	Asynchronous
		100%

Course Description

Stoichiometric calculations, principles of chemical equilibria, titrimetric and gravimetric analysis including: acids and bases and buffers, aqueous and non-aqueous acid-base titrations, precipitation titrations, complexometric titrations, oxidation reduction and potentiometric titrations and ion-selective electrodes, and principles of gravimetric analysis. Emphasis should be given to the pharmaceutical analysis applications.

Course Learning Outcomes

CLO	Outcome	PLO	Corresponding Competencies
Knowledge			
K1	Demonstrate a comprehensive knowledge of various methods of expressing concentration.	K _{P1}	C1
K2	Conduct calculations relevant to wet methods (volumetric and gravimetric) of chemical analysis.	K _{P1} , K _{P6}	C1, C6
K3	Demonstrate knowledge of the basic principles of titrimetric and gravimetric methods of chemical analysis.	K _{P1}	C1
Skills			
S1	Demonstrate technical skills used in the performance of wet methods of quantitative chemical analysis.	S _{P2}	C8
S2	Make observations and assessments of important factors that could affect the wet methods of chemical analysis.	S _{P2} , S _{P9}	C8, C15
S3	Demonstrate effective written and oral communication skills relevant methods of chemical analysis.	S _{P9}	C15
S4	Access resources for analytical and pharmaceutical methods of analysis in both printed and electronic format.	S _{P2} , S _{P9}	C8, C15

CLOs: Course learning outcomes

PLOs: Programme learning outcomes

C1: Learner; C6: Manufacturer; C8: Problem Solver; C9: Innovator

Learning Resources

Course Textbook	G. D. Christian, P.H. Dasgupta, and H. A. Shug, "Analytical Chemistry", Seventh edition, John Wiley, 2014
Supporting References	Handouts when needed
Supporting Websites	https://www.philadelphia.edu.jo/academics/anajjar/
Teaching Environment	<input checked="" type="checkbox"/> Classroom <input checked="" type="checkbox"/> laboratory <input type="checkbox"/> Learning Platform <input type="checkbox"/> Other

Meetings and Subjects Time Table

Week	Topic	Learning Method*	Task	Learning Material
1	شرح رؤية ورسالة الكلية، واهداف ومخرجات تعلم المادة			الخطة الدراسية
2	Brief introduction: Analytical objectives and basic equipment in analytical laboratory	lecture		Chapter 1+2 & Handout
3	Stoichiometric Calculations: The Workhorse of the Analyst	lecture, problem solving based learning, collaboration learning.	Quiz 1 Assign. 1	Chapter 5 & Handout
4				
5				
6	General Concepts of Chemical Equilibrium	lecture, problem solving based learning, collaboration learning.	Quiz 2	Chapter 6 & Handout
7				
8	Acid–Base Equilibria	lecture, problem solving based learning, collaboration learning.	Quiz 3	Chapter 7 & Handout
9				
10	Acid–Base Titrations	lecture, problem solving based learning, collaboration learning.	Assign. 2	Chapter 8 & Handout
11	Complexometric Reactions and Titrations	lecture, problem solving based learning,		Chapter 9 & Handout
12	Gravimetric Analysis and Precipitation Equilibria	lecture, problem solving based learning,	Quiz 4	Chapter 10 & Handout
13	Precipitation Reactions and Titrations	lecture, problem solving based learning,		Chapter 11 & Handout
14	Redox and Potentiometric Titrations	lecture, problem solving based learning, collaboration learning.	Quiz 5 Project 1	Chapter 14 & Handout
15				
16	Final Exam			

*Includes: lecture, flipped Class, project based learning, problem solving based learning, collaboration learning.

Course Contributing to Learner Skill Development

Using Technology
<ul style="list-style-type: none"> - Use Excel in numerical problems solving. - Use variety of electronic databases in searching for published data.
Communication Skills
<ul style="list-style-type: none"> - Apply critical thinking and hypothesis-driven methods of scientific inquiry - Demonstrate effective written and oral communication skills
Application of Concept Learnt
Pharmaceutical analysis in deferent matrecies for varity fields (industrial, clinical, regulatory,...etc.)

Assessment Methods and Grade Distribution

Assessment Methods	Grade	Assessment Time (Week No.)	Course Outcomes to be Assessed
Mid Term Exam	30%	10	K1, K2, K3
Term Works*	30%	Continuous	K2, S1, S2, S3, S4
Final Exam	40%	16	K1, K2, K3, S1, S2
Total	100%		

* Include: quizzes, in-class and out of class assignment, presentations, reports, videotaped assignment, group or individual project.

Alignment of Course Outcomes with Learning and Assessment Methods

CLO	Learning Outcomes	Corresponding Competencies	Learning Method*	Assessment Method**
Knowledge				
K1	Demonstrate a comprehensive knowledge of various methods of expressing concentration.	C1	lecture	exam
K2	Conduct calculations relevant to wet methods (volumetric and gravimetric) of chemical analysis.	C1, C6	problem solving based learning, collaboration learning	exam, quizzes
K3	Demonstrate knowledge of the basic principles of titrimetric and gravimetric methods of chemical analysis.	C1	problem solving based learning, collaboration learning	exam
Skills				
S1	Demonstrate technical skills used in the performance of wet methods of quantitative chemical analysis.	C8	collaboration learning	exam
S2	Make observations and assessments of important factors that could affect the wet methods of chemical analysis.	C8, C15	problem solving based learning, collaboration learning	exam, quizzes, assignments
S3	Demonstrate effective written and oral communication skills	C15	project based learning,, Lab.	reports

	relevant methods of chemical analysis.			
S4	Access resources for analytical and pharmaceutical methods of analysis in both printed and electronic format.	C8, C15	project based learning, problem solving based learning	individual projects, reports

*Include: lecture, flipped class, project based learning, problem solving based learning, collaboration learning.

** Include: quizzes, in-class and out of class assignments, presentations, reports, videotaped assignments, group or individual projects.

Course Policies

Policy	Policy Requirements
Passing Grade	The minimum pass for the course is (50%) and the minimum final mark is (35%).
Missing Exams	<ul style="list-style-type: none"> • Anyone absent from a declared semester exam without a sick or compulsive excuse accepted by the dean of the college that proposes the course, a zero mark shall be placed on that exam and calculated in his final mark. • Anyone absent from a declared semester exam with a sick or compulsive excuse accepted by the dean of the college that proposes the course must submit proof of his excuse within a week from the date of the excuse's disappearance, and in this case, the subject teacher must hold a compensation exam for the student. • Anyone absent from a final exam with a sick excuse or a compulsive excuse accepted by the dean of the college that proposes the material must submit proof of his excuse within three days from the date of holding that exam.
Attendance	The student is not allowed to be absent more than (15%) of the total hours prescribed for the course, which equates to six lecture days (n t) and seven lectures (days). If the student misses more than (15%) of the total hours prescribed for the course without a satisfactory or compulsive excuse accepted by the dean of the faculty, he is prohibited from taking the final exam and his result in that subject is considered (zero), but if the absence is due to illness or a compulsive excuse accepted by the dean of the college that The article is introduced, it is considered withdrawn from that article, and the provisions of withdrawal shall apply to it.
Academic Integrity	Philadelphia University pays special attention to the issue of academic integrity, and the penalties stipulated in the university's instructions are applied to those who are proven to have committed an act that violates academic integrity, such as cheating, plagiarism (academic theft), collusion, intellectual property rights.

Program Learning Outcomes to be Assessed in this Course

Number	Learning Outcome	Course Title	Assessment Method	Targeted Performance level

Description of Program learning Outcomes Assessment Method

Number	Detailed Description of Assessment

Assessment Rubric of the Program Learning Outcomes

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