

Philadelphia University	 PHILADELPHIA UNIVERSITY THE WAY TO THE FUTURE	Approved Date: 14/10/2021
Faculty:		Issue: 1
Department:		Credit Hours: 1
Academic Year:		Course Syllabus

Course Information

Course No.	Course Title	Prerequisite
0510207	Instrumental Analysis laboratory	0510206
Course Type		Room No.
<input type="checkbox"/> University Requirement <input type="checkbox"/> Faculty Requirement <input type="checkbox"/> Major Requirement <input type="checkbox"/> Elective <input checked="" type="checkbox"/> Compulsory		
Class Time		Room No.
Section 1 Sunday 14:15-16:00		5402
Section 2 Monday 14:15-16:00		5402
Section 3 Tuesday 14:15-16:00		5402
Section 4 Wednesday 14:15-16:00		5402
Section 5 Sunday 8:15-10:15		5402
Section 6 Monday 8:15-10:15		5402
Section 7 Sunday 11:15-13:00		5402
Section 8 Wednesday 14:15-16:00		5402

Instructure Information

Name	Office No.	Phone No.	Office Hours	E-mail
Mohammad Abu Nuwar	517	2620	Sunday to Thursday 10:00-11:00 am	mabunuwar@philadelphia.edu.jo
Yasmeen Mahmood Darweesh	616	2173	Sunday to Thursday 10:00-11:00 am	ydarwish@philadelphia.edu.jo
Kahraman Kamel Wahesh	403	2261	Sunday to Thursday 10:00-11:00 am	KWahsh@philadelphia.edu.jo

Course Delivery Method

<input checked="" type="checkbox"/> Blended	<input type="checkbox"/> Online	<input type="checkbox"/> Physical
Learning Model		
Percentage	Synchronous	Asynchronous
		50%
		50%

Course Description

This course provides practical assessment of the instrumental methods used in pharmaceutical analysis; including Spectroscopic methods (UV-Visible, IR, and NMR), Chromatographic methods (HPLC and GC, TLC) and Electroanalytical methods.

Course Learning Outcomes

Number	Outcome	Corresponding Program Outcomes	Corresponding Competencies
Knowledge			
K1	Demonstrate the knowledge of data acquisition and analysis for various techniques	Kp1	C1
Skills			
S1	Interpret the Uv-visible, infrared and NMR spectra for structure identification of some pharmaceutical compounds.	Sp2, Sp9	C8,C18
S2	Work on different instruments critical for pharmaceutical analysis.	Sp9	C15
S3	Demonstrate effective written and oral communication skills, especially the ability to transmit complex technical information in a clear and concise manner.	Sp6	C12
S4	Use pharmaceutical analysis techniques to identify simple organic and pharmaceutical molecules.	Sp2,Sp9	C8, C15

Learning Resources

Course Textbook	Instrumental Chemical Analysis Laboratory Manual
Supporting References	Chemical Analysis: Modern Instrumentation Methods and Techniques; F. Rouessac and A. Rouessac, John Wiley; 2nd edition (2007)
Supporting Websites	None
Teaching Environment	<input type="checkbox"/> Classroom <input checked="" type="checkbox"/> laboratory <input checked="" type="checkbox"/> Learning Platform <input type="checkbox"/> Other

Meetings and Subjects Time Table

Week	Topic	Learning Method*	Task	Learning Material
1	Introduction / Safety rules	Asynchronized lecture and practical Lab. session	Reports and Quizzes	Exp 1
2	Refractometry			Exp 2
3	Polarimetry			Exp 3
4	Thin Layer Chromatography			Exp 4
5	High performance liquid chromatography			Exp 5
6	Gas chromatography			Exp 6
7	Ion Exchange Chromatography			Exp 7
8	UV-Visible spectroscopy			Exp 8
9	Infrared spectroscopy			Exp 9
10	NMR spectroscopy			Exp 10
11	Practical Exam		Exam	Exam
12	Final Exam		Exam	Exam

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

Course Contributing to Learner Skill Development

Using Technology
Training on various instrument softwares and data presentation using EXCEL
Communication Skills
<ul style="list-style-type: none"> • Interpret the Uv-visible, infrared and NMR spectra for structure identification of some pharmaceutical compounds. • Demonstrate effective written and oral communication skills, especially the ability to transmit complex technical information in a clear and concise manner.
Application of Concept Learnt
Pharmaceutical analysis of various chemical compound on different samples

Assessment Methods and Grade Distribution

Assessment Methods	Grade	Assessment Time (Week No.)	Course Outcomes to be Assessed
Reports and evaluation	30%	contenious	K1, S1, S2, S4
Quizzes	20%	contenious	S1, S2, S3, S4
Final practical examination	10%	11	K1, S1, S2, S4
Final Exam	40%	12	K1, S1, S2, S4
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

Number	Learning Outcomes	Corresponding Competencies	Learning Method*	Assessment Method**
Knowledge				
K1	Demonstrate the knowledge of data acquisition and analysis for various techniques	C1	Lecture	Final exam and quizzes
Skills				
S1	Interpret the Uv-visible, infrared and NMR spectra for structure identification of some pharmaceutical compounds.	C8, C18	Lecture and Lab session	Exam, report and quiz
S2	Work on different instruments critical for pharmaceutical analysis.	C15	Lab session	Report and practical exam
S3	Demonstrate effective written and oral communication skills, especially the ability to transmit complex technical information in a clear and concise manner.	C12	Lab session	Report
S4	Use pharmaceutical analysis techniques to identify simple organic and pharmaceutical molecules.	C8,C15	Lab session	Final Exam and report

*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 Polices

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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