



**Jordan University of Science and Technology**  
**Faculty of Pharmacy**  
**Pharmacy Department**

PHAR226 Pharmaceutical Sciences Lab - JNQF Level: 7

Second Semester 2023-2024

**Course Catalog**

1 Credit Hours. This course is a practicum designed to train students on the qualitative and quantitative aspects of pharmaceutical analysis, such as titration, chromatographic separation, in addition to techniques pertinent to extraction, isolation, synthesis, purification, and identification.

**Teaching Method:** On Campus

**Text Book**

<b>Title</b>	Analytical chemistry
<b>Author(s)</b>	Gray D. Christian
<b>Edition</b>	7th Edition
<b>Short Name</b>	1
<b>Other Information</b>	

**Course References**

Short name	Book name	Author(s)	Edition	Other Information
2	British Pharmacopoeia	Anthony C. Cartwright	4th Edition	
3	Pharmaceutical Analysis: A text book for pharmacy students and pharmaceutical chemists	David G. Watson	5th Edition	
4	Pharmacognosy by Trease and Evans	William Charles Evans	15th Edition	
5	Powdered Vegetables Plant Drugs	Betty P. Jackson and Derek W. Snowdon	1st Edition	
6	Drugs of Natural Origin	Lars Bohlin, Gunnar Samuelsson	7th Edition	

**Instructor**

<b>Name</b>	<b>Manar Abu Serhan</b>
<b>Office Location</b>	-
<b>Office Hours</b>	
<b>Email</b>	mmabuserhan@just.edu.jo

**Instructor**

<b>Name</b>	<b>Mrs. Dua Alsinglawi</b>
<b>Office Location</b>	-
<b>Office Hours</b>	Sun : 09:30 - 11:30 Mon : 15:00 - 16:00 Wed : 10:00 - 12:00 Thu : 10:00 - 11:00
<b>Email</b>	dsalsinglawi6@just.edu.jo

Instructor	
Name	Bayan Altal
Office Location	-
Office Hours	
Email	bkaltal@just.edu.jo

Class Schedule & Room
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Section 1:  
Lecture Time: Sun : 11:30 - 14:30  
Room: LAB

Section 2:  
Lecture Time: Sun : 14:30 - 17:30  
Room: LAB

Section 3:  
Lecture Time: Mon : 08:30 - 11:30  
Room: LAB

Section 4:  
Lecture Time: Mon : 11:30 - 14:30  
Room: LAB

Section 5:  
Lecture Time: Tue : 08:30 - 11:30  
Room: LAB

Section 6:  
Lecture Time: Tue : 11:30 - 14:30  
Room: LAB

Section 7:  
Lecture Time: Tue : 14:30 - 17:30  
Room: LAB

Section 8:  
Lecture Time: Mon : 14:30 - 17:30  
Room: LAB

Section 9:  
Lecture Time: Wed : 08:30 - 11:30  
Room: LAB

Section 10:  
Lecture Time: Wed : 11:30 - 14:30  
Room: LAB

Section 11:  
Lecture Time: Wed : 14:30 - 17:30  
Room: LAB

Section 12:  
Lecture Time: Thu : 08:30 - 11:30  
Room: LAB

Section 13:  
Lecture Time: Thu : 11:30 - 14:30  
Room: LAB

Section 14:  
Lecture Time: Mon : 11:30 - 14:30  
Room: LAB

Section 15:  
Lecture Time: Tue : 11:30 - 14:30  
Room: LAB

Section 16:  
Lecture Time: Wed : 11:30 - 14:30  
Room: LAB

Section 17:  
Lecture Time: Thu : 11:30 - 14:30  
Room: LAB

Section 18:  
Lecture Time: Mon : 08:30 - 11:30  
Room: LAB

Section 19:  
Lecture Time: Tue : 08:30 - 11:30  
Room: LAB

Section 20:  
Lecture Time: Wed : 08:30 - 11:30  
Room: LAB

Section 21:  
Lecture Time: Thu : 08:30 - 11:30  
Room: LAB

Section 22:  
Lecture Time: Mon : 14:30 - 17:30  
Room: LAB

Section 23:  
Lecture Time: Tue : 14:30 - 17:30  
Room: LAB

Section 24:  
Lecture Time: Wed : 14:30 - 17:30  
Room: LAB

#### Prerequisites

Line Number	Course Name	Prerequisite Type
302243	PHAR224 Medicinal Chemistry 1	Pre./Con.

#### Tentative List of Topics Covered

Weeks	Topic	References
Week 1	Introduction	From 1
Week 2	Quantitative analysis of vitamin C effervescent tablet	From 1, From 2
Week 3	Quantitative analysis of Aspirin tablet	From 2, From 3
Week 4	Potentiometric acid-base titration	From 1, From 2, From 3
Week 5	Quantitative estimation of Metformin HCl using UV-Visible spectrophotometry (1)	From 1, From 2, From 3
Week 6	Quantitative estimation of Metformin HCl using UV-Visible spectrophotometry (2)	From 1, From 2, From 3
Week 7	Synthesis of Phenytoin from Benzil (1)	From 1, From 2
Week 8	Synthesis of Phenytoin from Benzil (2)	From 1, From 2
Week 9	Extraction of secondary metabolites from selected plants	From 2, From 4, From 5, From 6

Week 10	Phytochemical screening of the ethanolic extract of selected plants	From 2, From 4, From 5, From 6
Week 11	Isolation of Caffeine form Tea Leaves	From 2, From 4, From 5, From 6
Week 12	Isolation of Clove oils by steam distillation	From 2, From 4, From 6

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Identify the quantitative analytical skills necessary to perform accurate chemical analysis as well as independently operate each technique introduced in the laboratory [1PLO1.1] [1L7S2]	25%	Mid-term exam, Reports
Develop necessary skills to solve a particular analytical problem, including: selection of an appropriate technique, performing the measurements, analyzing the data and presenting the results in the form of a concise scientific report [1PLO3.1] [1L7S2]	25%	Mid-term exam, In-Lab evaluation
Develop the appropriate knowledge and skills of the methods of extraction and separation of natural plant constituents [1PLO3.2] [1L7S1]	20%	
Detect the phytochemical groups by different chemical methods and TLC profiles supported by pharmacopoeia (To identify the groups of plant secondary constituents) [1PLO3.1] [1L7S1]	20%	Product
Assess the basic steps in synthetic medicinal chemistry [1PLO3.2] [1L7S3]	10%	

Relationship to Program Student Outcomes (Out of 100%)															
PLO1.1	PLO2.1	PLO3.2	PLO3.3	PLO2.2	PLO2.3	PLO2.4	PLO3.1	PLO3.4	PLO3.5	PLO3.6	PLO4.1	PLO4.2	PLO4.3	PLO4.4	PLO5.1
25		30					45								

Relationship to NQF Outcomes (Out of 100%)		
L7S1	L7S2	L7S3
40	50	10

Evaluation	
Assessment Tool	Weight
Mid-term exam	25%
In-Lab evaluation	5%
Reports	15%
Product	5%
Final exam	50%

Policy	
Exams	All exams are closed book and notes. The final exam is comprehensive (covers all the material). Incomplete exams need approval from the dean
Cheating	Prohibited; The commitment of the acts of cheating and deceit such as copying during examinations, altering examinations for re-grade, plagiarism of homework assignments, and in any way representing the work of others as your own is dishonest and will not be tolerated. Standard JUST policy will be applied المادة 7: إذا ضُبط الطالب أثناء الامتحان أو الاختبار متلبساً بالغش فتوقع عليه العقوبات التالية مجتمعة: أ- اعتباره راسياً في ذلك الامتحان أو الاختبار. ب- الغاء تسجيله في بقية المساقات المسجل لها في ذلك الفصل. ج- فصله من الجامعة لمدة فصل دراسي واحد، و هو الفصل التالي للفصل الذي ضبط فيه.
Attendance	Excellent attendance is expected. JUST policy requires the faculty member to assign ZERO grade (35) if a student misses 10% of the classes that are not excused. If you miss class, it is your responsibility to find out about any announcements or assignments you may have missed.
Participation	Excellent participation is expected

Withdraw	Last day of courses withdrawal (without reimbursement of tuition fees) is 26/5/2023
Classroom Cell Phone Policy	? The use of cell phones, smart phones, or other mobile communication devices is disruptive, and is therefore prohibited during class without permission. ? Except in emergencies, those using such devices must leave the classroom for the remainder of the class period.

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