



Jordan University of Science and Technology

Faculty of Pharmacy

Pharmacy Department

PHAR372 Pharmaceutical Microbiology And Biotechnology Lab - JNQF Level: 7

Second Semester 2023-2024

Course Catalog

1 Credit Hours. Students are trained on the methods of culturing, staining and identifying bacteria. Bacterial metabolism, the way bacteria are affected by antibiotics, the essentials of sterilization and quantifying microorganism growth and the methods of producing antibiotics using biotechnological techniques will also be covered.

Teaching Method: On Campus

Text Book

Title	Hugo and Russell's Pharmaceutical Microbiology
Author(s)	Stephen P. Denyer, Brendan F. Gilmore
Edition	9th Edition
Short Name	Ref. 1
Other Information	2023

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref. 2	Practical Handbook of Microbiology	Lorrence H Green, Emanuel Goldman	4th Edition	2021
Ref. 3	Gene Cloning and DNA Analysis: An Introduction	Terry Brown	8th Edition	2020

Class Schedule & Room

Section 3:
Lecture Time: Sun : 14:30 - 16:30
Room: LAB

Section 4:
Lecture Time: Mon : 08:30 - 10:30
Room: LAB

Section 5:
Lecture Time: Mon : 10:30 - 12:30
Room: LAB

Section 6:
Lecture Time: Mon : 12:30 - 14:30
Room: LAB

Section 7:
Lecture Time: Mon : 14:30 - 16:30
Room: LAB

Section 9:
Lecture Time: Tue : 10:30 - 12:30
Room: LAB

Section 10:
Lecture Time: Tue : 12:30 - 14:30
Room: LAB

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

Prerequisites		
Line Number	Course Name	Prerequisite Type
303710	PHAR371 Pharmaceutical Biotechnolog	Pre./Con.

Tentative List of Topics Covered		
Weeks	Topic	References
Week 2	Safety Rules + Gram Stain Procedure	From Ref. 1
Week 3	Preparation of Culture Media	From Ref. 1
Week 4	Viable Count Method	From Ref. 1
Week 5	Other Bacterial Counting methods + Dilution Calculations	From Ref. 1
Week 6	The Kirby-Bauer Antimicrobial sensitivity test procedure	From Ref. 1
Week 7	Antimicrobial Susceptibility Testing-The Tube (Broth) Dilution Method.	From Ref. 1
Week 8	Qualitative suspension test: the DGHM guideline + Evaluation of Pharmaceutical preparations (Efficacy of preservatives and sterility test)	From Ref. 2
Week 9	Quantitative suspension test + Determination of the Phenol Coefficient (Rideal-Walker Test)	From Ref. 2
Week 10	Bacterial genomic DNA isolation	From Ref. 3
Week 11	Agarose gel electrophoresis	From Ref. 3
Week 12	Polymerase Chain Reaction (PCR)	From Ref. 3

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
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Prepare the bacterial growth media, differentiate types of bacteria and count the bacterial concentration [1PLO1.1][1L7K1, 1L7S2, 1L7C3]	30%	
Select the antibiotic of choice and define its MIC [1PLO1.1][1L7K1, 1L7S1]	25%	
Evaluate disinfectant action depending on different protocols [1PLO1.1][1L7K1, 1L7S3]	18%	
Characterize the isolated and purified DNA by gel electrophoresis [1PLO4.2][1L7K1, 1L7C2, 1L7C3]	27%	

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
73												27			

Relationship to NQF Outcomes (Out of 100%)					
L7K1	L7S1	L7S2	L7S3	L7C2	L7C3
40.5	12.5	10	9	9	19

Evaluation	
Assessment Tool	Weight
Midterm Exam	25%
Final Exam	40%
Quizzes	15%
Presentation	5%
Reports	10%
Personal Evaluation	5%

Policy	
Communicating with Instructors	<ul style="list-style-type: none"> - Students should communicate through their official JUST emails. Communication through personal email accounts (yahoo, Gmail, Hotmail, etc.) or social media will NOT be accepted, and no response will be provided. - Students are required to check their emails and the E-learning page of the course regularly for announcements and notifications.
Exams	<ul style="list-style-type: none"> - All exams are closed books and notes. - The final exam is comprehensive (covers all the material). - The first, second, and midterm incomplete exams need approval from the departments' heads. - The final incomplete exams need approval from the dean.
Cheating	<p>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.</p> <p>المادة 7: إذا ضبط الطالب أثناء الامتحان أو الاختبار متلبساً بالغش فتوقع عليه العقوبات التالية مجتمعة:</p> <p>أ- اعتباره راسباً في ذلك الامتحان أو الاختبار.</p> <p>ب- الغاء تسجيله في بقية المساقات المسجل لها في ذلك الفصل.</p> <p>ج- فصله من الجامعة لمدة فصل دراسي واحد، و هو الفصل التالي للفصل الذي ضبط فيه.</p>
Attendance	<ul style="list-style-type: none"> - Attendance is mandatory and will be recorded regularly. - Excellent attendance is expected. - Students who miss more than 20% of the classes will be dropped from the course as per JUST policy. - If you miss class, it is your responsibility to find out about any announcements or assignments you may have missed.
Active learning and students' participation	<ul style="list-style-type: none"> - Students are expected to actively participate in class discussions.
Course Withdrawal	<ul style="list-style-type: none"> - Last day to drop the course is before the twelve (12th) week of the current semester

<p>Classroom Etiquette</p>	<ul style="list-style-type: none"> - Respect <ul style="list-style-type: none"> o Respect people, places, and things. o Raise your hand to speak. o Listen respectfully. o Food and drink are not permitted in class. o Do not engage in aside conversations. - Participation or Disruption: <ul style="list-style-type: none"> o Do not hesitate to ask questions at any time, especially if you are unsure of something. o Listen to other students' questions to avoid asking the same question five minutes later. o Allow your classmates to participate in class discussions and refrain from taking advantage of all opportunities for active participation. - Cell Phones and Electronic Devices: <ul style="list-style-type: none"> o Texting is not permitted in class. o The use of cell phones, smartphones, or other mobile communication devices is disruptive and is therefore prohibited during class without permission. o Your phone should be turned off. If you must keep your phone on, you should set it to vibrate or silent mode and leave class if you receive an emergency call. o Except in emergencies, those using such devices must leave the classroom for the remainder of the class period. o Do not use your laptop in class for browsing the Internet or using social media while in class. - Missing a Class <ul style="list-style-type: none"> o Do not miss classes. It is not appropriate to ask the professor if you missed anything important if you miss class. Obviously, something of importance was missed, you missed a whole class! o Whenever you are absent from class, it is your responsibility to make up the work and to get notes, not your professor?s. o If you need to leave early, notify the instructor. - Be Punctual <ul style="list-style-type: none"> o Make sure you arrive to class on time.
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