



Course Detailed Description – Procedures of the Course Plan Committee /Faculty of Pharmacy

QF02/0408–2.1E

Department	Pharmacy
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Course Name	Pharmaceutical Microbiology Lab	Course No.	0201332
Prerequisite	Biology Lab	Credit Hours	1
Number & date of course plan approval	2016/2017	Brief Description	See form QF02/0409

Course Objectives	Pharmaceutical microbiology laboratory provides the basic knowledge and practice about sources of microbial contamination, aseptic techniques, isolation of bacteria, identification of bacteria, and antimicrobial susceptibility testing.
Intended Learning Outcomes	By the end of this course, the student will be able to: <ol style="list-style-type: none"> 1. Identify microorganisms. 2. Measuring the efficacy and potency of different antimicrobial agents. 3. Using different sterilization methods and designing optimum sterilization cycles and monitoring microbiological quality for both sterile and non-sterile dosage forms.
Course Topics	This course is intended to teach the students the practice of microbiology including: <ol style="list-style-type: none"> 1. Laboratory safety. 2. Antiseptic techniques. 3. Pure culture techniques. 4. Handling and identification of microorganisms. 5. Antimicrobial susceptibility testing of antibiotics, antiseptics and disinfectants. 6. Methods of sterilization.
Text Books	1. Cappuccino, J.G. and Sherman, N. (2005) "Microbiology- A Laboratory Manual" 7 th ed. Pearson Education, Inc., Publishing as Benjamin Cummings, San Francisco, CA 94111, USA
References	1. Primrose S.B. and Wardlaw A.C. (2004) Sourcebook of Experiments for the Teaching of Microbiology 5 th ed., Academic Press, London.
Grade Determination	Course Work = 50% (Reports, Term Papers, Quizzes) Final Exam = 50%



Course Outline				
Week	Hou rs	Subjects	Chapters in Textbook	No tes
1	3	<ul style="list-style-type: none"> Laboratory safety and laboratory protocol Aseptic techniques and subculturing of bacterial cultures 	1 ST	
2	3	<ul style="list-style-type: none"> Sources of microbial contamination (air, water, respiratory tract, hair, throat, hands, dust) 	2 nd	
3	3	<ul style="list-style-type: none"> Techniques for isolation of pure cultures Cultural characteristics of microorganisms 	3 th	
4	3	<ul style="list-style-type: none"> Microscopy Preparation of bacterial smears Simple staining 	4 th	
5	3	<ul style="list-style-type: none"> Differential staining of bacterial cell structure Gram stain Acid-fast staining Spore and capsule stain 	5 th	
6	3	<ul style="list-style-type: none"> Media for routine cultivation of bacteria Differential and selective media (MacConkey agar, Mannitol-salt agar, EMB Agar) Enrichment media (Blood agar, types of hemolysis, alpha, beta, and gamma) 	6 th	
7	3	<ul style="list-style-type: none"> Disinfectants and antiseptics Agar plate-sensitivity method 	7 th	
8	3	<ul style="list-style-type: none"> Chemotherapeutic agents The Kirby-Bauer antibiotic susceptibility test procedure 	8 th	
9	3	<ul style="list-style-type: none"> Determination of minimal inhibitory concentration (MIC) by broth dilution method 	9 th	
10	3	<ul style="list-style-type: none"> Determination of minimal bactericidal concentration (MBC) by agar method 	10 th	
11	3	<ul style="list-style-type: none"> Phenol coefficient Evaluation of antiseptic and disinfectant activity 	11 th	P



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Week	Hours	Subjects	Chapters in Textbook	Notes
12		<ul style="list-style-type: none"> The fungi Cultural characteristics of yeasts and molds Slide preparation by Scotch tape method Lactophenol cotton blue staining procedure <i>Penicillium</i> , <i>Aspergillus</i>, and <i>Candida</i> 	12 th	
13		<ul style="list-style-type: none"> Parasitic protozoa Intestinal , luminal, blood and tissue protozoa 	13 th	
14		<ul style="list-style-type: none"> The efficiency of methods of sterilization Effect of moist heat (autoclaving) Effect of ultraviolet light 	14 th	

Approved by Dept. Chair		Date of Approval	
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Extra Information: (Updated every semester and filled by course instructor)

Course Instructor	Dr. Mohammad Abu Sini
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Office hours	