



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

QF02/0408-1.0

Department	Pharmacy
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Course Name	Pharmaceutical Microbiology	Course No.	201331
Prerequisite	Biology	Credit Hours	3
Number & date of course plan approval	2013-2014	Brief Description	See form QF02/0409

Intended Learning Outcomes	<p>The course is intended to provide the student with:</p> <ol style="list-style-type: none"> 1. The basic information about microorganisms, their basic structure and mode of growth 2. Some microorganisms that have medical, pharmaceutical and environmental importance. 3. The basic information about the different types of antimicrobial therapy, their prudent use and their mode of action 4. The concept of sterilization, disinfection, antisepsis and preservation. 5. The different chemical and physical methods used to control microbial contamination. 6. The methods used for the evaluation of antimicrobial efficacy and factors affecting it. 7. Different applications of microorganisms in pharmaceutical sciences. 		
Course Topics	<ol style="list-style-type: none"> 1. Fundamentals of microorganisms that include bacteria, fungi, protozoa and viruses and the principles of microbial pathogenicity 2. Antimicrobial agents and microbial resistance. 3. Microbiological aspects of pharmaceutical processing. 		
Text Books	Hugo, W.B and Russell, A.D.(2004); Pharmaceutical Microbiology, 7 th ed. Blackwell Science, UK		
References	<ol style="list-style-type: none"> 1. Winfield, A.J. and Richards, R.M.E. ed. (2007) Pharmaceutical practice 3rd. ed. Churchill Livingstone, U.K. 2. Black, J.G.(2002); Microbiology, Principles and explorations. 5th ed. John Wiley Publication, USA 3. Nester, E.W., Anderson, D.G., Roberts, C.E. Pearsall, N.N. and Nester, M.T.(2004): Microbiology, A Human Perspective, 4th ed. McGraw Hill, USA 4. Prescott, L.M., Harley, J.P., and Klein, D.A.(2002); Microbiology, 5th ed. McGraw Hill, USA 		
Grade Determination	1 st Exam = 25% 2 nd Exam = 25% Final Exam = 50%	Practical Course Grade Determination	Course Work = 50% (Reports, Term Papers, Quizes) Final Exam = 50%



Course Outline				
Week	Hours	Subjects	Chapters in Textbook	Notes
1	1 1 1	Bacteria, structure and forms of bacterial cell. Bacterial reproduction, bacterial growth. Properties of pathogenic bacterial species.	Chapter 3	
2	1 1 1	Properties of fungi, detection methods. Pathogenic fungi <i>C. albicans</i> , <i>Cryptococcus neoformans</i> and <i>Aspergillus fumigatus</i> . Antifungal agents and fungal resistance.	Chapter 4	
3	1 1 1	Viruses: general properties, structure, Multiplication of human viruses. Problems of viral chemotherapy, tumor viruses and HIV	Chapter 5	
4	1 1 1	Protozoa: Blood and tissue parasites Intestinal parasites. Control of protozoan parasites and their drug resistance.	Chapter 6	
5	1 1 1	Principles of microbial pathogenicity. Portals of entry, manifestation of disease. Damage to tissues, exit of microorganisms	Chapter 7	
6	1 1 1 1	Antibiotics and agents and their mechanism of action. synthetic antimicrobial agents and their mechanism of action Bacterial resistance to antibiotics	Chapter 10, 12 Chapter 13	
7	1 1 1	Clinical uses of antimicrobial drugs: Principles of use, Clinical uses and antibiotic policies	Chapter 14	
8	1 1 1	Chemical disinfectants, antiseptics and preservatives. Factors affecting choice of antimicrobial agent, Types of compounds and disinfection policies	Chapter 17	
9	1 1 1	Microbial spoilage of pharmaceutical products Preservation of medicines using antimicrobial agents. Quality assurance and the control of microbial risk in medicines	Chapter 16	
10	1 1 1	Contamination of non-sterile pharmaceuticals in hospital and community environments: significance of microbial contamination, source of contamination, factors determining the Outcome of a medicament-borne infection, prevention of contamination	Chapter 21	
11	1 1	Principles and practice of sterilization: Sensitivity of microorganisms, sterilization methods, heat, gaseous, Radiation and filtration sterilization	Chapter 12 Ref. No. 1	



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12	1 1	Sterile pharmaceutical products: injections, non-injectable sterile fluids, Ophthalmic preparations, dressings, Implants and absorbable haematostats	Chapter 19	
13	1 1	Sterilization control and sterility assurance: Bioburden determinations, Environmental monitoring, sterility testing	Chapter 20	
14	1 1	Sterility testing: Sterility test conditions, growth promotion test, Validation test,	Chapter14 Ref. No.1	
15	1 1	Sterility testing: Methods for testing the sterility of the products Pyrogens: nature of endotoxins, depyrogenation	Chapter 14 Ref. No.1	
16	1	Manufacture of antibiotics: production of benzypenicillin, Production of cephalosporin	Chapter 22	

Approved by Dept. Chair	Dr. Wafa Jasim Al-rajab	Date of Approval	2.12.2013
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Extra Information: (Updated every semester and filled by course instructor)

Course Instructor	Dr. Wafa Jasim Al-rajab
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