



Paramedical Program

Specialization	Medical Laboratories
Course Number	020811113
Course Title	Microbiology/ Practical
Credit Hours	(2)
Theoretical Hours	(0)
Practical Hours	(6)





Brief Course Description:

The course deals with the laboratory safety measures, microscopy, preparation, staining and cultivation of bacteria .Concentration is put on the identification of bacteria and the effects of physical and chemical agents on bacteria. Moreover it deals with, fungal microscopy and culture and culturing of different samples and biochemical tests for identification of bacterial species.

Course Objectives:

Upon the completion of the course, the student will be able to learn about:

1. Personal safety protection.
2. How to deal with Laboratory waste disposal
3. Collection, Preservation and Transportation of Samples.
4. Culture& Identification
5. Reporting and Recording
- 6.Preparations and Staining
- 7.Effects of physical and chemical agents on bacteria
(Heat. Radiation,Ultrasound,Salting,Filtration,Disinfectants,Antiseptics cooling and Preservatives).
8. Cultivation of Bacteria
9. Fungi identification
- 10.Culturing different samples.
- 11.Biochemical tests used to differentiate bacteria.



**Detailed Course Description:**

Unit No.	Unit Name	Unit Content	
1.	Laboratory Safety	<ul style="list-style-type: none"> ▪ Procedures. ▪ Personal protection requirements. ▪ Biosafety levels. ▪ Safety equipment. ▪ Laboratory waste disposal. 	
2.	Microscopy	<ul style="list-style-type: none"> ▪ Use of different types of microscopes. ▪ Instruments “Components of microscope”. ▪ Collection ,Preservation and Transportation of Samples. ▪ Culture & Identification. ▪ Preparing of Specimens. ▪ Reporting and Recording. 	
3.	Preparation and Staining	<ul style="list-style-type: none"> ▪ Wet preparation :hanging drop method ▪ Gram stain. ▪ Acid Fast stain. ▪ Albert Stain. 	
4.	Cultivation of Bacteria	1-Cultivation of Bacteria 2-Classification & examples of culture media. 3-Preparation of media. 4-API system. 5-Identification of bacteria. 6-Shape and Appearance. 7-Colony Count. 8-Colony morphology.	
5.	Culturing of samples	*urine culture *stool culture *blood culture *Upper & Lower respiratory system speciemens culture *CSF culture * Eye/Ear/Wound and burn speciemens	

❖ تطبق هذه الخطة الدراسية اعتباراً من بداية العام الجامعي 2009/2008



6.	Application of physical and chemical agents on bacteria	*Heat.*Radiation.*Ultrasound.*Salting *Filtration.*Disinfectants.*Antiseptics and Preservatives.*Cooling.	
7.	Fungi Microscopy	*Fungi Microscopy.* Culturing of fungi.	
8.	Biochemical Tests	*Suger fermentation tests *MR test *Indole test *VP test *Oxidase test *Nitrate reduction test *Urease test *Coagulase test *Catalase test *TSI / KIA *Gelatin liuefaction test *H2S production test	

Evaluation Strategies:

Exams		Percentage	Date
Exams	First Exam Practical	20%	--/--/----
	Second Exam Practical	20%	--/--/----
	Final Exam Practical	50%	--/--/----
Homeworks and Projects		10%	--/--/----
Discussions and lecture Presentations			



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**Teaching Methodology:**

Lectures. Group discussion. Videos. Live patterns & samples. Practical applications.

Text Books & References:**References:**

1. Bailey & Scott's Diagnostic Microbiology, 13th ed, 2014 Patricia M. Tille. Mosby
2. Medical Microbiology, David Greenwood, Mike Barer, Richard Slack, Will Irving 18th ed, 2012. Ghurchil Livingstone, UK.
3. Medical Microbiology, Jawetz, Melnick & Adelberg 26th ed, 2013, Mc Graw Hill, USA.
4. Microbiology Laboratory Theory & Application, 4th ed 2015. Michael J. Leboffe & Burton E. Pierce. Englewood Co.
5. Koneman's color Atlas & Text book of Diagnostic Microbiology. Gary W. Procop & W. Koneman 7th ed, Washington Winn Jr. 2016

