

COURSE SYLLABUS

(Clinical Bacteriology-1 MLAB-471)

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Course title: Clinical Bacteriology-1 Code: MLAB-471
Credit hours: 4 (3 Theory+1 Practical)
Name of faculty member: Dr. Mohamudha Parveen Rahamathulla
Level/year : 1 st semester, 7 th level.
Pre-requisites for this course: General Microbiology (MLAB-352)

Course Description : This course covers systemic pathogenic bacteria including mycoplasmal, rickettsial and chlamydial diseases of humans, their pathogenesis, modes of transmission, epidemiology, methods for isolation and identification. Areas of study include: aerobic Gram-positive cocci, bacilli and acid fast bacilli, *Haemophilus*, *Brucella*, *Bordetella*, *Neisseria* and Enterobacteriaceae, as well as methods of testing their susceptibility to antibacterial agents.

Topics to be covered		
List of Topics	No. of Weeks	Contact Hours
Introduction: <ul style="list-style-type: none"> • General Characteristics of bacteria • Taxonomy and Classification of bacteria Lab: Collection and transport of different specimens	1 st week	3 1
Normal microbial flora of human body: <ul style="list-style-type: none"> • General attributes and virulence factors of bacteria causing infections • Exotoxins, enterotoxins, endotoxins, neurotoxins • Host Parasite relationships Lab: Preparation of media- Nutrient, blood, chocolate agar	2 nd week	3 1
Harmful Microbial Interactions with Human: <ul style="list-style-type: none"> • Entry of pathogens into the host • Mechanism of bacterial pathogenicity, colonization and growth • Host factors for infection and innate resistance to infection Lab: Operation and maintenance of autoclave, hot air oven, distillation plant	3 rd week	3 1

Morphology, pathogenicity and laboratory diagnosis of Gram positive organisms- I: <ul style="list-style-type: none"> • Staphylococci • Streptococci • Pneumococci 	4 th week	3
Lab: Washing and sterilization of glasswares Care and maintenance of common laboratory equipments		1
Gram positive organisms-II: <ul style="list-style-type: none"> • <i>Bacillus</i> • <i>Clostridium</i> • <i>Corynebacterium</i> 	5 th week	3
Lab: Preparation of reagents – oxidase, kovac etc., Aseptic practice in Lab and safety precautions.		1
Morphology, pathogenicity and laboratory diagnosis of, <ul style="list-style-type: none"> • <i>Mycobacterium Tuberculosis</i> • <i>Mycobacterium leprae</i> 	6 th week	3
Lab: Simple Staining		1
Anti-tuberculosis treatment	7 th week	3
Lab: Gram's Staining		1
Morphology, pathogenicity and laboratory diagnosis of Enterobacteriaceae-I: <ul style="list-style-type: none"> • <i>Escherichia coli</i> • <i>Klebsiella</i> • <i>Proteus</i> 	8 th week	3
Lab: Acid-fast staining		1
Enterobacteriaceae-II: <ul style="list-style-type: none"> • <i>Shigella</i> • <i>Enterobacter</i> • <i>Yersinia</i> 	9 th week	3
Lab: Hanging drop technique		1
Enterobacteriaceae-III: <ul style="list-style-type: none"> • <i>Serratia</i> • <i>Salmonella</i> 	10 th week	3
Lab: Techniques of Anaerobiosis		

		1
Emerging bacterial disease Lab: Automation in Microbiology	11 th week	3 1
Non-Enterobacteriaceae: <ul style="list-style-type: none"> • <i>Pseudomonas</i> • <i>Vibrio</i> Lab: Albert staining and Capsule staining	12 th week	3 1
Morphology, pathogenicity and laboratory diagnosis of Gram negative bacteria <ul style="list-style-type: none"> • <i>Haemophilus</i> • <i>Rickettsia</i> Lab: Skin tests : Mantoux, Lepromin, Casoni's etc.	13 th week	3 1
Chamydial infections Lab: Isolation of bacteria (Streak, spread and pour plate)	14 th week	3 1
Sexually transmitted diseases: <ul style="list-style-type: none"> • Gonorrhoea • Syphilis Lab: Methods of enriched, selective and enrichment culture techniques used to isolate organisms from clinical materials.	15 th week	3 1

Schedule of Assessment Tasks for Students During the Semester

Assessment	Assessment task (eg. essay, test, group project, examination etc.)	Week due	Proportion of Final Assessment
1	First midterm exam	7 th	10%
2	Second midterm exam	11 th	10%
3	Final Practical exam	14 th	20%
4	Final Theory exam	16 th	50%
5	Attendance & assignment works	Continuous	10%

1. Required Text(s)

- Mim's Medical Microbiology. Richard V Goreing, 4th edition (2008); Publisher: Elsevier publications
- Ananthanarayanan R and CK Jayaram Panicker, 1994, Textbook of microbiology Orient Longman
- Medical Microbiology by Murray and others. Last Edition. Publisher: Mosby

2. Essential References

1. Medical Microbiology by Jawetz, Melnick & Adelbergs.
2. Microbiology by Harvey, Champe and Fisher. Second Edition (2007)
3. Mackie and Mc catney, 1994, Medical Microbiology No I and II. Churchill Livingston, 14th edition.
4. Chakraborty P 1995, A Text book of microbiology, New Central Book Agency Pvt Ltd. Calcutta.
5. Bailey and Scotts, 1994, Diagnostic Microbiology, 9th edition, Baron and Finegold .CV Mosby Publications

3- Recommended Books and Reference Material (Journals, Reports, etc) (Attach List)

- John G Holt et al. Bergey's Manual of Determinative Bacteriology. Maryland, Williams & Wilkins
- Microbiology with diseases by Taxonomy. Robert W. Bauman, 3rd edition (2011); Publisher: Pearson Publications
- The Journal of Infectious Diseases. Pub : The University of Chicago Press, 1998.
- Journal of Communicable Diseases, Pub : The Indian Society for Malaria and other communicable disease. 1999.
- Infectious Disease Clinics of North America. Pub : W.B. Saunders Company, A Division of Harcourt Brace & Company, 1999.
- Indian Journal of Medical Microbiology, Pub : Indian Associates of Medical Microbiologists, 1999.
- The Indian Journal of Medical Research. Pub : Indian Council of Medical Research, New Delhi. 1999.
- Annual Review of Microbiology, Pub : Annual Reviews Inc. Palo Alto. California, USA. 1997.

4- Electronic Materials, Web Sites etc

- www.masteringmicrobiology.com
- <http://www.ncbi.nlm.nih.gov/ICTV>
- <http://www.asm.org>
- <http://www.tulane.edu/~dmsander/garryfavweb.html>
- <http://www.yk.rim.or.jp/~aisoai/soft.html>
- <http://www.bioprotocol.com/protocolstools/index.jhtml>

5- Other learning material such as computer-based programs/CD, professional standards/regulations

- Bacteriology CDs such as Microbes in Motion I, II

Name of the faculty: Dr.Mohamudha Parveen Rahamathulla