

Department : **Clinical Laboratory Sciences**
Course Number : **CLS 417**
Course Title : **Clinical Practice in Microbiology**
Credit Hours : **1 + 2 = 3**

Course Description:

This final microbiology course involves lectures as well as practical sessions in a hospital Microbiology laboratory. The lectures will deal mainly with specimens received in the bacteriology laboratory, their collection, suitability, and processing. The students will be introduced to the safety measures implemented in the laboratories. They will learn about culture media preparation and sterilization, processing of specimens, isolation/ identification of organisms, and antibiotic susceptibility testing. The diagnostic techniques in the routine Clinical Immunology, Mycology and Virology laboratories will also be taught.

CLS 417: Lectures Outline

Weeks	Subjects
1.	Bacteriological culture media Basic constituents / preparation / sterilisation Types of bacteriological culture media
2.	Urine Specimens – Types of / collection Processing for chemical analysis
3.	Bacteriology of urine specimens continued ... Pathogens isolated from urine specimens Processing of urine specimens for routine culture sterile pyuria
4.	Blood culture /Indications for Timing and technique for blood collection Manual / Automated processing of blood culture
5.	Sputum culture / Indication for / Collection Processing of sputum in routine respiratory tract infections
6.	Processing of sputum in pulmonary tuberculosis by conventional / automated methods Antimycobacterial susceptibility testing by conventional and automated methods
7.	Stools specimens / indications for culture Pathogens isolated from faecal specimens

8. Processing of stools for culture / Isolation and identification of different organisms
9. Preparation of stools specimen for examination of parasites
10. General bench specimens: CSF / Pus / Ear/ Conjunctiva / Genital / Nasal / Throat- indications for taking these specimens / collection / processing
12. Commonly used serological tests in clinical bacteriology
Widal / CFT / ASO , Serological test of syphilis specific and non-specific: RPR,VDRL,TPHA, FTA ,CRP, Pregnancy test, TORCH, organ transplant matching(MHC)& FC
13. Rapid review in diagnosis of common viral infections.
Tissue culture types- CPE
CPE / EIA / Immunofluorescence
14. Rapid review in diagnosis of common fungal infections -
Microscopic examination and culture of specimens in Mycology

CLS 417: Laboratory Schedule

Weeks	Subjects
1.	Bacterial culture media preparation / sterilisation and review of the commonly used media
2.	Urine examination – pH, chemical analysis Microscopic examination of deposit. Culture of urine specimens & Identification of isolates
3.	Sterile fluids and CSF processing, cultures.and Identification of isolates
4.	Blood – collection / processing methods Subculture of blood specimens for isolation / Identification of isolates-susceptibility testing
5.	Sputum specimens – Macroscopic / microscopic Examination – Gram, Fluorescent, ZN staining Culture and identification of isolates.
6.	Culture and identification Mycobacteria by conventional / automated methods
7.	Stools specimens – macroscopic and microscopic examination for parasites Culturing of stools specimens on various culture media

8. Isolation / identification of pathogens
Serology of the salmonellas, shigellas, ...
9. GENERAL BENCH SPECIMENS
(ear, eye, throat, nose, CSF, pus, genital ...)
Macroscopic and microscopic examination
Processing of specimens. Isolation , identification
of isolates
10. CLINICAL MYCOLOGY
Specimen collection; Examination of KOH / LPCB mounts
Review of different culture media used in mycology
11. CLINICAL IMMUNOLOGY
Review on the different serological tests related to
bacterial infection diagnosis (Widal , RPR, VDRL,
ASO , CFT tests)
12. CLINICAL VIROLOGY
Processing of specimens in Virology
Microscopic examination of tissue cultures and CPE.
Review of the different serological methods
13. **Revision**
14. **Final Practical Examination**

Assessments:

Mid Term Examination(1):	15
Mid Term Examination(2)	15
Absentees & reports	10
Final Practical Examination:	20
Final Theoretical Examination:	40

References:

1. Cossart, P., P. Boquet, S. Normark, and R. Rappuolo. **Cellular Microbiology**. ASM Press, Washington, DC, 2000
2. Vandepitte ,J and Verhaegen J,Engbaek K,Rohner P,Poit P,and C C. Heuck. **Basic laboratory in Clinical Bacteriology**.WHO,Geneva,2nd Edition 2003
3. Kaufmann, S. H. E., A. Sher and R. Ahmed. **Immunology of Infectious Diseases**. ASM Press, Washington, DC, 2001
4. Madigan, M. T., Martinko, J. M., and J. Parker. **Brock Biology of**

Microorganisms. Prentice Hall, Upper Saddle River, NJ, 1997

5. Mims, C., A. Nash, and J. Stephen. **Mims' Pathogenesis of Infectious Disease.** Academic Press, San Diego, CA. 2001
6. Prescott, L. M., J. P. Harley, and D. A. Klein. **Microbiology** (3rd edition) Wm. C. Brown Publishers, Dubuque, IA, 1996
7. Salyers, A. A. and D. D. Whitt. **Bacterial Pathogenesis. A Molecular Approach.** ASM Press, Washington, DC, 1994
8. Tortora, G. J., B. R. Funke, and C. L. Case. **Microbiology, An Introduction.** (7th edition) Benjamin Cummings, San Francisco, 2002

Stephen H. Gillespie. **Medical Microbiology Illustrated.** Butterworth-Heinemann Ltd. Latest edition