

SCHOOL OF PUBLIC AND ALLIED HEALTH
DEPARTMENT OF MEDICAL LABORATORY SCIENCE
COURSE OUTLINE

MLSC 407: MEDICAL BACTERIOLOGY – 3units
FIRST SEMESTER, 2014/2015 SESSION

LECTURERS: IHONGBE J.C, OCHEI J.O and EFFEDUA H.I.

COURSE DESCRIPTION: Introduction to the microbial world: Bacteriology, Mycology, Virology and Parasitology. Scope of microbiology, historical approach etc. Classification and nomenclature of microorganisms. General characteristics of bacteria. Bacterial structure, nutrition, growth and reproduction. Sterilization in microbiology. Bacteria and pathology. Antibiotics, chemotherapy and immunity. Diagnostic Medical Laboratory techniques and serology.

COURSE OBJECTIVES:

By the completion of this course, students should be able to:

1. Name and identify various structures of bacteria.
2. Name three nutritional and energy requirements of bacteria.
3. Draw and explain the bacterial growth curve
4. Explain the principle of bacterial reproduction.
5. Demonstrate basic diagnostic skill in bacteriology.
6. Make appropriate choice of antibiotic disc for antimicrobial susceptibility test.
7. Perform antimicrobial susceptibility testing.
8. Recognise cases of antibiotic resistance and the underlining mechanisms.

COURSE REQUIREMENTS:

- (1) Punctual and regular attendance at classes. Lateness is reckoned ten minutes after class begins.
- (2) Impromptu quizzes.
- (3) Class assignments.
- (4) Mid-semester examination.
- (5) Final examination.

EVALUATION:

Class attendance	5%
Quizzes and tests	10%
Assignments	10%
Mid-semester examination	15%
Final examination	60%

CLASS SCHEDULE

WEEK	COURSE OUTLINE	LECTURER	
1.	Definition and history of microbiology. Evolutionary trends and theories in microbiology. Discoveries in microbiology.	Ihongbe J.C	1-2
2.	Bacterial nomenclature and taxonomy. System of classification in bacteriology (classical, phylogenetics, numerical and computerization method).	Ihongbe J.C	3
3.	Bacterial genetics and variation: essential and non-essential genes. Bacterial metabolism.	Effedua H.I	4
4.	Bacterial in health and diseases. Bacterial virulence and pathogenicity. Virulence factors: cellular and extracellular factors (toxins and enzymes). Infections and immunity.	Effedua H.I	5-6
5.	MID-SEMESTER EXAMINATION		7
6.	Sterilization in microbiology. Rationale for sterilization. Physical and chemical sterilization agents. Disinfectants and antiseptics.	Effedua H.I	8-9
	Practical- Principles, procedures and types of sterilization techniques.	All staff	
7.	General properties of bacteria, structure, growth, reproduction, environmental and nutritional requirements.	Ochei J.O	10
	Practical- Preparation of culture media. Principles of culture media.	All staff	
8.	Introduction to diagnostic laboratory techniques and serology. Physiological test (motility etc), staining (Gram, ZN, capsule, spore etc) and biochemical tests (sugar fermentation, urease, indole, oxidase, citrate Utilization etc.).	Ochei J.O	11-12
	Practical- Biochemical tests.		
9.	Antibiotics and chemotherapy. Standard methods for the determination of antimicrobial susceptibility.	Ochei J.O	13
	Practical- Antibiotic susceptibility testing.		
10	REVISION		14

RECOMMENDED TEXTS:

- (a) District Laboratory Practice in Tropical Countries (Part 2) by Cheesbrough .M (2005). Published by Cambridge University Press, International Sales Department, The Edinburgh Building, Cambridge CB2 2RU, U.K.
- (b) Jawetz, Melnick and Adeberg's Medical Microbiology by Brooks G.F., Carroll K.C., Butel J.S., Morse S.A and Mietzner T.A (2010) 25th Edition. Published by Mc Graw Hill Company, U.S.A.
- (c) Medical Laboratory Science (Theory and Practice) by Ochei .J and Kolhatkar .A (2000). Published by Tata McGraw-Hill Publishing Company Limited, 7 West Patel Nagar, New Delhi 110 063 and Sheel Print-N-Park. D-123. Hosiery Complex, Phase II, Noida.
- (d) Questions and Model Answers in Medical Bacteriology by Agbonlahor D.E., Uzoma K.C., Nwobu K.A.U., Adedeji S.O and Adegbola R.A (1996) 2nd Edition.
- (e) Manual of Pathogenic Bacteria and Fungi by Ojo M.O (2009). Published by Banola Multi Project Limited, P.O Box 19927, University of Ibadan, Nigeria.