

Talat

Course number = CLS 311

Course title = Basic Microbiology

Credit hours = 3+1 = 4

Course description

This course provides the students with basic theoretical and practical aspects of various groups of microorganisms to include bacteriology, virology, mycology, and parasitology. It also introduces the basic concepts of disinfectants, method of sterilization; and aseptic techniques.

CLS 311

WEEK

Subject

1. General introduction to Microbiology
Historical background and
Classification of
Microorganisms

2. introduction to Viruses
 - Classification
 - Structure morphology & structure
 - Replication
 - Pathogenicity

3. Introduction to Fungi
 - Classification
 - Morphology & structure
 - Pathogenesis

4. Introduction to Parasites
 - Classification
 - General Characteristics of parasites.
 - Medically important Parasites

5. Introduction to Bacteria
 - Classification
 - Morphology
 - Structure
6. Bacterial structures
1st MID TERM
7. Microbial Growth requirements
 - Nutritional requirement
 - Physical requirements
8. Bacterial Growth
 - Growth curve
 - Constant and psynchronous growth
9. Bacterial Metabolism
 - Catabolic Pathways
 - Types of bacteria according to energy production
10. Microbial Control
 - Principles
 - Physical and chemical methods
11. Pathogenicity of Infectious Diseases
Normal Microbial flora
12. Bacterial Genetics
 - Mutation
 - Gene transfer
13. Bacterial Genetics

CLS 311

Laboratory Schedule

WEEK

Subject

1. Introduction to Microbiology laboratory techniques and safety rules.
2. introduction to Microscopy

Types of Microscopes.

3. Examination of Stained Smear and Wet Preparation.
4. Microscopic examination of Eucaryotic microorganisms .
5. Staining of Bacterial Cells (simple staining)
6. Staining OF Bacterial Cells (differential staining)

7. Preparation and Yypes of Culture Media
8. Bacterial Culture Techniques
Colonial Morphology
9. Bacterial Count (Total & Viable)
10. Factors Affecting Microbial Growth
11. Physical and chemical methods used in microbial control
12. Revision
13. FINAL PRACTICAL EXAMIANTION

Department : Clinical Laboratory Sciences

Course number : CLS 411

Course title : Clinical Bacteriology I

Credit hours : 2 + 1 = 3

Course description :

The first part of this course deals with the theoretical and practical aspects of chemotherapeutic agents, their modes of action, methods of evaluation and susceptibility testing, and mechanisms of microbial resistance.

The second part deals with brief description of host parasite relationships, followed by detailed study of structure and physiology of gram (+) & (-) cocci, aerobic spore and non-spore forming bacilli and the Mycobacteria, their cultures, diseases and clinical presentation, pathogenesis, modes of transmission, laboratory diagnosis and prevention and control.

CLS 411

Course outlines

Weeks	Subject
1,2 .	Antibiotics, Staphylococci, & Micrococci
3,4	Neisseria Moraxella
5,6,7 .	Viridans group of streptococci NVS Pneumococci Beta haemolytic streptococci (Group A – B – C) Aerococcus Pediococcus Gemella
8 .	Corynebacteria
9 .	Listeria Erysipelothrix Lactobacilli Kurthia .
10.	Bacillus
11,12 .	Mycobacteria tuberculosis, M. leprae Atypical mycobacteria
13 .	Actinomyces Legionella, Francesella, Gardenerella, Pasteurella, & DONOVANOSIS

CLS 411

Laboratory Schedule

Week	subject
1 .	Antibiotic sensitivity testing .
2 .	Staph aureus .
3 .	Coag . positive staph .
4 .	Neisseria .
5 .	Moraxella & Direct Ag detection of Neisseria .
6 .	Alpha hemolytic streptococci .
7 .	Beta hemolytic streptococci .
8 .	Strept. Like oraganisms .
9 .	Corynebgact .
10 .	Listeria .
11 .	Bacillus .
12 .	Mycobacteria .
13 .	Nocardia Actinomyces.

Department : Clinical Laboratory Sciences
Course number : CLS 413
Course title : Clinical Bacteriology II
Credit hours : 2 + 1 = 3

Course description :

This course is a completion to CLS 411, it deals with the study of structure and physiology of gram-negative bacteria to include tribes of enterobacteriaceae, pseudomonads, vibrios, campylobacter, Helicobacter, Bordetella, brucella, Haemophilus, legionella and related organisms, spirochetes, Mycoplasma, Chlamydia, diseases and clinical presentation, pathogenesis, modes of transmission, laboratory diagnosis, susceptibility testing, and prevention and controls.

Weeks	Subject
1,2,3	Enterbacteria
4,5	Small gram negative germens taking bacilli <ul style="list-style-type: none">- Haemophilus- Brucella- Bordetella .
6 .	Vibrio
7 .	Campylobacter Pseudomonas
8 .	Treponema .
9.	Borrelia Leptospira
10 .	Rickettsia Anaerobes <ul style="list-style-type: none">- Peptococcus- Peptostreptococcus- Veilonella
11 .	Clestriolia
12 .	Baceterioles
13 .	* Lactobacilli * Propionobacteria Mycoplasma Chlamydia

CLS 413

Laboratory Schedule

Week

subject

- 1 . Culture of Enterobacteria .
- 2 . Biochemical reaction of Enterobacteria .
- 3 . API 20E, serotyping of enterobacteria .
- 4 . Haemophilus .
- 5 . Brucella – Bordetella
- 6 . Vibrio
- 7 . Campylobacter
Pseudomonas
- 8 . Serological tests of Syphilis .
- 9 . Borrelia vincentii
- 10 . Weil – felix reaction
Anaerobic cocci
- 11 . Clostridia
- 12 . Mycoplasma
Chlamydia
Lactobacilli
Propionibacteria

DEPARTMENT : CLINICAL LABORATORY SCIENCES
COURSE NUMBER : CLS 417
COURSE TITLE : CLINICAL PRACTICE IN MICROBIOLOGY
CREDIT HOURS : 1 + 2 = 3

COURSE DESCRIPTION

Student training in routine microbiology laboratory in a university hospital . Training includes safety precautions in laboratory , media preparation , sterilization , specimens collection methods , processing of specimens for culture , isolation and identification of organisms by conventional and rapid methods , clinic bacteriological correlation and antibiotic sensitivity .

The last part of the course includes a tour for rapid preview in clinical immunology mycology and virology laboratories in university hospital of the routine diagnostic methods and the most recent or most rapid ones

CLS 417

LECTURE SCHEDULES

WEEKS

SUBJECTS

1

media
-basic constituents
-preparation
-sterilisation
-types

2,3

Urine
-specimen collection
-processing for chemical analysis
-pathogens isolated
-processing for routine culture
-sterile pyuria

4

Blood
-indications for blood culture
-time for taking blood culture
-technique of blood collection for culture
- blood culture media
-organisms isolated from blood

-processing for culture

5-6

Sputum
-indications for sputum culture

- common pathogens
- collection methods
- processing for culture in routine respiratory tract infections
- processing of culture in pulmonary tuberculosis by conventional methods and BACTEC
- antimycobacterial susceptibility testing by conventional methods and using BACTEC

7-8-9

Stools

- indications for culture
- pathogens isolated
- processing of stools for culture
- isolation and identification of different organisms
- preparation for parasitological examination

10-11

General bench specimens :

- CSF
- PUS
- EAR
- CONJUNCTIVA
- GENITAL
- NASAL
- TROAT
- indications for taking these specimens
- collection methods
- common pathogens
- processing for culture

12

commonly used serological tests in clinical bacteriology

- widal test
- C.F.T.
- ASO

- serological test of syphilis specific and non specific

13

Rapid review in diagnosis in common viral infections

- tissue culture types
 - CPE
 - EIA

-immunofluorescens

- 14 Rapid review in diagnosis of common fungal infections
 -microscopical examination
 -cultures media and culture

CLS 417 LABORATORY SCHEDULE

- 1 Media
 Preparation , pH measuring , sterilization
 and review on commonest used media
- 2,3 URINE
 NE examination , pH , chemical analysis
 microscop.examination of the deposit
 culture and identification of isolates
- 4 BLOOD
 Collection of blood , blood culture methods
 , blood culture media , incubation time
 protocol , bacterial growth detection ,
 subculture of blood for isolation and
 identification of pathogens
- 5-6 SPUTUM
 Preparation of specimens, NE exam. ,
 microscop exam for specimen screening ,
 gram staining , fluorescent staining and ZN
 staining for acid fast bacilli

Culture and identification of different organisms. Culture and identification of acid fast bacilli by classical methods and using BACTEC

- 7,8 ,9 STOOLS
NE exam , preparation for microscopical detection of parasites
Media for stool culture , isolation and identification of pathogens.Seroagglutination of Salmonella , Shigella and Enteropathogenic Ecoli .
- 10,11 GENERAL BENCH SPECIMENS
(EAR, EYE, THROAT, NOSE,CSF, PUS,GENITAL)
NE exam of CSF and pus .Microscop exam of direct smear . Processing for culture , isolation and identif of different organisms
- 12 CLINICAL MYCOLOGY LAB TOUR
Specimen collection , preparation for microscopy , slides examination with different staining methods . Review of different culture media , fungal and yeast growth
- 13 CLINICAL IMMUNOLOGY LAB TOUR
Rapid review on the different serological tests related to bacterial infection diagnosis (Widal , RPR, VDRL,ASO , CFT tests) .
- 14 CLINICAL VIROLOGY LAB TOUR
Specimens received in the lab . Processing of specimens.
Microscop exam of tissue cultures and CPE.
Immunofluorescens and rapid review of the different serological methods

