

STUDENT STUDY GUIDE FOR GENERAL PATHOLOGY AND MICROBIOLOGY
(3rd Year MBBS)

PATHOLOGY DEPARTMENT
LAHORE MEDICAL AND DENTAL COLLEGE, LAHORE

Prepared By

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STUDY GUIDE FOR GENERAL PATHOLOGY AND MICROBIOLOGY FOR 3RD YEAR MBBS

INTRODUCTION

The primary goal of the pathology course is to initiate the medical student in the study of disease. Without a clear understanding of the etiology (cause), pathogenesis (development), pathological anatomy, and pathophysiology of disease, clinical medicine would mean little more to the student than memorization of clinical syndromes and the empirical treatments applied to them. These concepts are developed in close association with the other basic sciences and with the clinical science that is also being introduced at this time. This study guide will give an insight to the students about all these competencies for a 7 star doctor and how to plan their educational activities in the subject of Pathology.

COURSE REQUIREMENT

Students need to have basic knowledge of Anatomy, Physiology, Biochemistry to understand the pathogenesis and laboratory diagnosis of different infectious diseases and pathological phenomenon of underlying diseases.

TARGET AUDIENCE:

3rd year M.B.B.S

DURATION OF COURSE:

- 9 months (36weeks)
- Teaching hours according to PMDC/PMC
- March 2022 --November 2022
- Send-up OCTOBER 2022
- Professional exam Acc to UHS
- Total lectures 180 @ 5 /week (minus 6wks)
= 180 lectures approx.
- General Pathology + Microbiology (50 + 90) lectures (minimum basic lectures)
- Practicals 1/week= 4-5 /month=36 approx
- Tutorial 1/week= 4-5/ month= 36 approx

COURSE LEARNING OBJECTIVES:

GENERAL PATHOLOGY

Goal: The broad goal of the teaching of undergraduate student in Pathology is to provide the students with a comprehensive knowledge of the causes and mechanisms of diseases, in order to enable him/her to achieve complete understanding of the natural history and clinical manifestations of disease.

OBJECTIVES

a. Knowledge

At the end of the course, the student should be able to:

- describe the structure and ultrastructure of a sick cell, mechanisms of cell degeneration, cell death and repair and be able to correlate structural and functional alterations.
- explain the pathophysiological processes which govern the maintenance of homeostasis, mechanisms of their disturbance and the morphological and clinical manifestations associated with it.
- describe the mechanisms and patterns to tissue response to injury such that she/he can appreciate the pathophysiology of disease processes and their clinical manifestations.
- correlate normal and altered morphology (gross and microscopic) of different organ systems in common diseases to the extent needed for understanding of disease processes and their clinical significance.

b. Skills

At the end of the course, the student should be able to:

- describe the rationale and principles of technical procedures of the diagnostic laboratory tests and interpretation of the results.
- draw a rational scheme of investigations aimed at diagnosing and managing the cases of common disorders.

MICROBIOLOGY

Goal: The broad goal of the teaching of undergraduate students in Microbiology is to provide an understanding of the natural history of infectious disease in order to deal with the etiology, pathogenesis, laboratory diagnosis, treatment and control of infections in the community.

OBJECTIVES**a. Knowledge**

At the end of the course, the student should be able to:

- state the infective micro-organisms of the human body and describe the host parasite relationship.
- list pathogenic micro-organisms (bacteria, viruses, parasites, fungi) and describe the pathogenesis of the diseases produced by them.
- state or indicate the modes of transmission of pathogenic and opportunistic organisms and their sources, including insect vectors responsible for transmission of infection.
- describe the mechanisms of immunity to infections.

- acquire knowledge on suitable antimicrobial agents for treatment of infections and scope of immunotherapy and different vaccines available for prevention of communicable diseases.
- apply methods of disinfection and sterilization to control and prevent hospital and community acquired infections.
- recommend laboratory investigations regarding bacteriological examination of food and water.

b. Skills

At the end of the course, the student should be able to:

- plan and interpret laboratory investigations for the diagnosis of infectious diseases and to correlate the clinical manifestations with the etiological agent.
- identify the common infectious agents with the help of laboratory procedures and use antimicrobial sensitivity tests to select suitable antimicrobial agents.
- perform commonly employed bed-side tests/bench tests for detection of infectious agents such as blood film for malaria, filaria, gram staining and AFB staining and stool sample for ova cyst.

FACULTY INTRODUCTION

<u>THEORY (SENIOR FACULTY)</u>	<u>PRACTICAL & TUTORIAL (Demonstrators)</u>
Prof.Shazia I .Rasa(HOD PTHOLOGY)	Dr. Saira Gul
Dr. Fauzia Sadiq (Class incharge)	Dr.Huma
Prof. Saadia Chaudry (Micro Teaching Incharge)	Dr.Amber
Dr. Shahbaz Amin	Dr.Sadaf qayyum
Dr. Nazia Ahmad	Dr.Seerat
Dr.Sonia Tahir	Dr.Rida
Dr.Momina	

TEACHING SCHEDULE & VENUE

THEORY

Face to Face teaching

Starting date of the session	March 2022
Venue	Lecture Hall 1&2
Course coverage	9 Months
No. of total lectures	More than 180 @ 5/week
Days of pathology lectures	Mon, Tues, Wed, Thurs, Fri

Online teaching:

Pertaining to circumstances the online teaching will be continued through MS teams from 12-1 pm from Monday to Thursday.

PRACTICALS

Starting date of the session	March 2022
Venue	Histopathology Laboratory& microbiology laboratory
Days of pathology practical's (face to face)	Monday-Thursday
Days of pathology practical's (online)	Friday and Saturday

TUTORIALS/Small Group Discussions

Starting date of the session	March 2022
Venue	Histopathology Laboratory& microbiology laboratory
Days of pathology tutorials(face to face)	Monday – Thursday
Long tutorial	FRIDAY (lecture hall # 2)
Days of pathology tutorials(online)	Friday and Saturday

Online teaching in Practicals and tutorials:

Practical /tutorial will be taken on Friday and Saturday from 1-3 pm on google Meet.

TEACHING METHODOLOGY:

1. Lectures (interactive, student centered)
2. Practicals
3. Small group discussions(tutorials)
4. OSPE
5. MCQ assignments
6. SEQ Assignments
7. Viva

Lectures alone are generally not adequate as a method of training, therefore, every effort shall be made to encourage the use of active learning methods. Students will be encouraged to learn in small groups through peer interactions and shall be taught in a setting of clinical relevance and hands on experience so that they assimilate and make the knowledge a part of their own working skill.

PRACTICAL & TUTORIAL SESSION:

Class is divided into 5 batches

Two batches will be coming to Pathology Department every week (Pathology and Clinical pathology)

The batch coming for Clinical pathology practical will be learning about the clinical aspects of disease and MCQ practice assignments. This batch is involved in small group discussions by allocation of subject topics.

Friday Tutorial time would be reserved for class tests discussion, OSPE or viva.

COURSE TO BE STUDIED (syllabus):

As advised by UHS.

Topics to be covered in third year BROADLY:

Gen. Pathology:

1. Cell Injury
2. Inflammation
3. Repair & healing
4. Hemodynamics
5. Immunity
6. Neoplasia
7. Genetics

Microbiology

1. General Bacteriology

2. Special bacteriology
 - Gm + cocci
 - Gm - cocci
 - Gm + rods
 - Gm - rods
3. Minor
 - bacteria/Spirochetes/Mycobacteria
4. Parasitology
5. Virology
6. Mycology

(A) GENERAL PATHOLOGY (DETAILS OF CHAPTERS)**CELL INJURY**

1. Necrosis, Ischemia, Hypoxia, Infarction and Gangrene Oncosis and Autolysis.
2. Sequence of the ultrastructural and biochemical change which occur in the cell in response to the following: Ischemia, Immunological injury, e.g., Asthma / SLE / Anaphylactic reaction, Physical agents, e.g., Radiation, Genetic defects e.g., Thalassemia / Hemophilia, Nutritional deficiency, e.g., Kwashiorkor, Infectious agents :Viruses, e.g., Hepatitis, Bacteria, e.g., Staphylococcus aureus, Fungi, e.g., Candida Parasites, e.g., Malaria, Nutritional deficiency
3. Irreversible and reversible injury
4. Apoptosis and its significance.
5. Necrosis and its types
6. Exogenous and endogenous pigmentation.
7. Dystrophic and metastatic calcification along with clinical significance.
8. Metabolic disorders
 - Lipid disorders, Steatosis of liver, Hyperlipidemia
 - Protein disorders
 - Carbohydrate disorders

INFLAMMATION, MEDIATORS OF INFLAMMATION

1. Role of inflammation in the defense mechanisms of the body.

2. Vascular changes of acute inflammation and their relation to morphological and tissue effects.
3. Process of Chemotaxis, Opsonization and Phagocytosis.
4. Role of cellular components in inflammatory exudate.
5. Exudates and transudate.
6. Important chemical mediators of inflammation.
7. Pathway of Arachidonic Acid metabolism.
8. Role of products of Arachidonic acid metabolism in inflammation.
9. Mechanism for development of fever, with reference to exogenous and endogenous pyrogens.
10. Chronic inflammation including Granulomas.
11. Granuloma and its types along with causes.
12. Systemic effects of acute and chronic inflammation and their possible outcomes.
13. Significance of ESR.
14. Induced hypothermia in medicine.
15. Healing in specialized tissue.

WOUND HEALING

1. Repair and regeneration.
2. Wound healing by first and second intention.
3. Factors that influence the inflammatory reparative response.
4. Wound contraction and cicatrisation.
5. Formation of granulation tissue.
6. Complications of wound healing.

DISORDERS OF CIRCULATION

a. Thrombo-embolic disorders and their modalities

1. Etiology and pathogenesis of thrombosis.
2. Possible consequences of thrombosis
3. Difference between thrombi and clots
4. Classification of emboli according to their composition.

5. Difference between arterial and venous emboli.

b. Hemorrhage, Hyperemia and Congestion

1. Definitions of common types of Hemorrhage
2. Types of hyperemia
3. Difference between hyperemia and congestion

c. Infarction

1. Types of infarction
2. Difference between anemic and hemorrhagic infarct
3. Morphological picture of infarction in different organ systems

d. Disorders of the circulation and shock

1. Edema, ascites, hydrothorax and anasarca.
2. Pathophysiology of edema with special emphasis on CHF.
3. Pathogenesis of four major types of shock (Hypovolemic, cardiogenic, vasovagal & septic) and their causes.
4. Compensatory mechanisms involved in shock.

MICROBIOLOGY

1. Defense mechanisms of the body.

2. Microbial mechanisms of invasion and virulence.

3. Difference between sterilization and disinfection.

4. Methods of disinfection and sterilization of the following:

- a. Facility where the doctor practices,
- b. Examination table,
- c. Any spillage e.g. sputum, vomitus, stool, urine, blood,
- d. Examination tools, e.g., thermometer, nasal and ear specula and spatula,

5. Principles of aseptic techniques such as Venepuncture, urinary catheterization, bandaging, suturing and lumbar puncture.

6. Universal precautions for infection control.

7. General principles of the following serological tests:

- a. ELISA – Hepatitis (A, B, C, D, E, G) Rubella, CMV and HIV
- b. PCR
- c. Haemagglutination – TPHA
- d. Western Blot –HIV

Malaria.

8. Interpretation of :

- a. Culture reports
- b. Serological reports and
- c. Microscopic reports of gram stain and ZN stain.

9. Principles of proper collection and submission of specimens for laboratory investigations

10. General characteristics and taxonomy of Bacteria, Rickettsia, Chlamydia, Viruses and Fungi.

11. Communicable, Endemic, Epidemic, and Pandemic Diseases, Carriers Pathogens, Opportunists, Commensals and Colonizers.

12. Microorganisms responsible for infection of the following organ systems:

- Central Nervous System
- Respiratory System
- Gastrointestinal System
- Genital System
- Urinary System
- Infections of Bones and Joints
- Zoonosis
- Infection of the Skin
- Hepatic Infections

13 Pathogenesis, Treatment, Epidemiology, Prevention and Control of the following organisms:

(i) Bacteria

Staphylococcus aureus

Bacillus anthracis

Streptococcus pneumoniae

Clostridium perfringens

Beta hemolytic streptococcus group a & b

Clostridium botulinum,

Diphtheria sp.

Clostridium difficile

Bordetella sp.

Clostridium tetani

Actinomyces israelii

Nocardia asteroides

Neisseria meningitidis

Neisseria gonorrhoeae

Gardnerella vaginalis

Haemophilus influenzae

Mycobacterium tuberculosis

Mycobacterium leprae

E.coli

Klebsiella

Proteus

Salmonella

Shigella

(ii) Viruses

Mumps

Herpes

Measles

Influenza,

Para influenza

RSV

Hepatitis A, B, C, D, E

Rota virus

CMV

(iv) Protozoa

Plasmodium species

Giardia lamblia

Entamoeba histolytica

Yersinia pestis

Pseudomonas

Vibrio cholera

Vibrio parahaemolyticus

Campylobacter jejuni

Helicobacter pylori

Legionella

Mycoplasma pneumoniae

Chlamydia

Treponema pallidum

Leptospira

Rickettsia sp.

EBV

Rubella

Chicken Pox

HIV

Rabies

(iii) Fungus

Cryptococcus neoformans

Candida albicans

Tinea species

Cryptosporidium

Leishmania species

Trichomonas vaginalis

Toxoplasma gondii

Pneumocystis carinii

(v) Helminths

Ascaris lumbricoides

Schistosoma species

Ancylostoma duodenale

Echinococcus species

Trichuris trichuria

Taenia solium

Enterobius vermicularis

Taenia saginata

Filaria species

Hymenolepis nana

Strongyloides stercoralis

PRINCIPLES OF ANTI MICROBIAL ACTION.

1. Antibiotics, selective toxicity, bacteriostatic and bactericidal.
2. Host determinants in relation to selection of an antimicrobial drug for therapy.
3. Minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC)
4. Bacterial resistance and the mechanisms involved in acquiring bacterial resistance.
5. Mechanisms involved in transfer of drug resistance to bacterial resistance.
6. Mode of action of various antimicrobial drug groups.
7. Superinfection and cross sensitivity.

LIST OF COMMON ORGANISMS CAUSING ORGAN SYSTEM EFFECTS

a. Common organisms causing CNS Infections

(i) Bacteria

Streptococcus pneumoniae

Beta hemolyticus streptococcus group b

Neisseria meningitidis

Haemophilus influenzae

Mycobacterium tuberculosis.

E.coli

Listeria monocytogenes

(ii) viruses

Enterovirus

Mumps

Herpes

Adenovirus

(iii) fungus

Cryptococcus neoformis

(iv) protozoa

B. Common organisms causing respiratory tract infection

(i) bacteria:

Streptococcus pneumoniae

Beta hemolytic streptococcus group b

Diphtheria sp.

Bordetella sp.

Haemophilus influenzae

Mycobacterium tuberculosis

Klebsiella

Legionella

Mycoplasma pneumoniae

(ii) viruses

Herpes

Adeno virus

Measles

Influenza

Para influenza

Rhinovirus

RSV

(iii) protozoa

Pneumocystis carinii

C. Organisms causing gastrointestinal tract infection / infestation

(i) Bacteria

Clostridium difficile

Malaria

Toxoplasma

Mycobacterium tuberculosis

Salmonella

Shigella

Vibrio cholera

Vibrio parahaemolyticus

Campylobacter jejuni

Helicobacter pylori

(ii) Viruses

Hepatitis A

Rota

(iii) Fungus

Cryptococcus neoformis

(vi) Protozoa

Giardia lamblia

Entamoeba histolytica

Cryptosporidium

D. Common organisms causing hepatic infections

(i) Bacteria

Streptococcus species

Coliforms

Anaerobes

(ii) Viruses

Herpes

Hepatitis A, B, C, D, E

(ii) viruses

CMV

Herpes

EBV

Measles

(iii) Protozoa

Rubella,

Entameba histolytica

Chicken pox

Tape worms

Moluscum contagiosum

Echinococcus granulosus

(iii) fungus

E. Common organisms causing skin infection

Candida albicans

(i) Bacteria

Tinea species

Staphylococcus aureus

(iv) arthropodes

Streptococcus pyogenes

Sarcoptes scabiei

Actinomyces israelii

Pediculus species

Nocardia asteroides

Cinex lectularius

Mycobacterium tuberculosis

(v) helminths

Mycobacterium leprae

Filaria species

Corynebacterium diphtheriae

Strongyloides stercoralis

Schistosoma sp.

(vi) protozoa:

Leishmania species.

f. Common organisms causing bone and joint infection

Bacteria: Staph aureus, Streptococcus pyogenes, Haemophilus influenzae, Neisseria gonorrhoeae, Brucella melitensis, Salmonella typhi, Strep. pneumoniae, Pseudomonas sp. and Mycobacterium tuberculosis.

g. Common organisms causing genital infection

(i) Bacteria: Mycoplasma urealyticum

(ii) Viruses: Pox, Herpes, Hepatitis B, HIV

(iii) Fungus: *Candida albicans*

(iv) Arthropodes: *Sarcoptes scabiei*

(v) Protozoa: *Trichomonas vaginalis*

h. Common organisms causing zoonosis

(i) Viruses: Rabies,

(ii) Protozoa: *Toxoplasma gondii*, *Leishmania* sp.

(iii) Helmenthics: *Echinococcus* sp.

GENETICS

1. Common sex linked, autosomal recessive and autosomal dominant disorders.
2. Common genetic mutations.
3. Diseases associated with consanguineous marriages.
4. Molecular biology techniques.

GROWTH DISORERS/NEOPLASIA

1. Atrophy and Hypertrophy, Agenesis, Dysgenesis, Aplasia, Hypoplasia, Hyperplasia, Metaplasia, Dysplasia, Neoplasia, Anaplasia,.
2. Cell cycle and cell types (stable, labile, permanent)
3. Mechanisms controlling cell growth
4. Classification systems of tumors.
5. Characteristics of benign and malignant tumors
6. Difference between Carcinoma and Sarcoma.
7. Grading and staging system of tumors.
8. Biology of tumor growth
9. Process of carcinogenesis
10. Host defense against tumors.
11. Mechanism of local and distant spread.
12. Local and systemic effects of tumors.
13. Tumor markers used in the diagnosis and management of cancers.

14. Common chemical, physical agents and viruses related to human cancer.
15. Epidemiology of common cancers in Pakistan.
16. Radiation and its effects on tissues.
17. Cancer screening.

IMMUNOLOGY

1. Antigen, antibody, epitope, hapten and adhesion molecules.
2. Difference between innate and acquired immunity.
3. Structure and function of major histocompatibility complex (MHC).
4. Cytokines.
5. Mechanism of humoral and cell mediated immunity.
6. Hypersensitivity reactions, Type I, Type II, Type III and Type IV.
7. Autograft, homograft, allograft and xenograft.
8. Immunotolerance and immunoparalysis.
9. Mechanism involved in allograft rejection and steps that can be taken to combat rejection.
10. Classification of Immunodeficiency disorders
11. Basis of autoimmunity.
12. Tissue transplantation.
13. Pathology and pathogenesis of AIDS.
14. Lab diagnosis of immunological diseases.

TOPIC FOR BREAK-UP FOR 3rd Year MBBS 2022

S.No	Topics General Pathology	Teachers/Facilitators
1.	Cell Injury	Prof.Dr.Fauzia Sadiq
2.	Inflammation	Prof.Shazia Ibnerasa
3.	Repair	Prof.Dr.Fauzia Sadiq
4.	Hemodynamics	Dr.Nazia Ahmad
5.	Genetics	Prof.Dr.Fauzia Sadiq
6.	Neoplasia	Dr.M.Shahbaz Amin
7.	Immunity	Prof.Shazia Ibnerasa
	Microbiology	

1.	Bacteriology	Prof.Saadia Ch. & Dr.Sonia Tahir
2.	Parasitology	Dr.Nazia Ahmad & Dr.Sonia Tahir
3.	Mycology	Prof.Saadia Ch.
4.	Virology	Prof.Saadia Ch. & Dr.Sonia Tahir

LIST OF PRACTICALS (OSPE) TO BE PERFORMED IN THE ACADEMIC YEAR 2022:

PRACTICALS- MICROBIOLOGY:

1. Sterilization of wire loop by flaming. Smear making and Gram staining and identification of Gram +ve and Gram –ve bacteria.
2. ZN staining and identification of acid fast bacilli.
3. Bench tests: Catalase test, Coagulase test, Oxidase test.
4. Identify and describe the characteristics of the following culture media:
Blood agar, Chocolate agar, MacConkey media & LJ media.
5. Biochemical tests for identification of bacteria.
6. Identify the autoclave, hot air oven and demonstrate their working?
7. Antibiotic sensitivity testing & anaerobic jar.
8. Blood culture- sample collection & processing.
9. Urine examination.
10. Stool examination.
11. Malarial parasite examination.

PRACTICALS- GENERAL PATHOLOGY:

1. Intracellular adaptations, Necrosis and intracellular accumulations
2. Pigmentation, fatty change
3. Acute and chronic inflammation,
4. Chronic venous congestion
5. Thrombus, infarction,
6. Benign and malignant Mesenchymal tumors,
7. Benign and malignant epithelial tumors
8. Granulation tissue
9. Types of giant cells
10. Exudate and transudate

TIME LINE FOR COURSE COVERAGE

CHAPTER NO.	NAME OF THE CHAPTER	NO. OF LECTURES	NO. OF PRACTICALS	NO. OF TUTORIALS
	Orientation class	1	1	1

01	Cell injury	9	5	4
02	General microbiology	25	4	4
03	Inflammation , Healing and repair	12	4	2
04	Special bacteriology- 1	20	4	3
05	Virology	10	-	2
06	Special bacteriology- 2	40	5	3
07	Neoplasia	12	4	2
08	Haemodynamics	09	4	2
09	Immunity	9	-	3
10	Parasitology	19	4	4
11	Human genetics	8	-	3
12	Mycology	6	1	3
	TOTAL	180	36	36

TIMELINE For PATHOLOGY TOPICS Academic year 2022

1	March	Cell injury,
2	April	Inflammation Healing and repair
3	May	General Micro
4	June	Special Micro .1
5	July	Neoplasia .Special Micro.2.

6	August	Hemodynamics Virology
7	September	Immunity Prasitology
8	October	Genetics
		Mycology
09	November	Wrap up Send up
10	December	Prep leave
11	January	Professional

FORMAT OF TUTORIAL CLASSES (small group discussion)

- Tutorial classes will be interactive sessions.
- Any ambiguity of the students on the topics being taught in the class will be removed.
- There will be an MCQ test in tutorials and these MCQs will be discussed afterwards.
- Students will be given written assignments/or presentation topics to be done or prepared in first 30 minutes. Presentations will be given verbally.
- The assignments will be discussed and answers checked by tutor at that time
- Every student will submit a copy of his/her Assignments to the class incharge.
- Topics of presentations and test will be displayed on the notice board or conveyed to class through class representatives.
- Presentations/Assignments and tests will be given weightage in internal evaluation.
- Attendance in pathology tutorial is mandatory for all students.

CODE OF CONDUCT

TIMINGS

The students should strictly follow the timings of lectures, practical & tutorial classes. Entry of students in class rooms and laboratories will not be permitted after 10 minutes of scheduled time.

ATTENDANCE & SEND UP EXAMINATION

75% attendance and 50% of internal assessment are required for appearing in professional examination of the University Of Health Sciences, Lahore. If any student is caught marking a proxy in lectures, tutorial and practical classes, he/she along with the absentee will be marked absent for two consecutive classes. Any unfair means in internal examination will disqualify a student for appearing in professional examination.

INTERNAL EVALUATION

Internal evaluation carries 10% of the total marks of 2nd professional examination. This is based on the performance of internal examination system, assignments, presentations and student teacher communication in practical & tutorial classes. The students must bring college identity cards while appearing in module evaluations and examination.

PRACTICAL NOTE BOOKS AND LAB COATS

Practical note books carry 05 marks. The students should strictly follow the protocol mentioned. The students will not be allowed to attend practical and tutorial classes without lab coats.

SUGGESTED READINGS:

TEXT BOOKS

1. Pathological Basis of Disease by Kumar, Cortan and Robbins, 9th Ed., W.B. Saunders. (Basic Pathology by Cotran & Kumar (Medium Robbins) Robbins Pathology 8th edition (Big Robbins)
2. Medical Microbiology and Immunology by Levinson and Jawetz, 9th Ed., Mc Graw-Hill.
3. Medical Genetics by Jorde, 3rd Ed., Mosby.
4. Clinical Pathology Interpretations by A. H. Nagi
5. Review of Medical Microbiology and Immunology by Lewinson

<http://www.pdfbooks11.com/2015/04/download-free-ebook-review-of-medical-Microbiology-and-Immunology.html>

REFERENCE BOOKS

Illustrated Pathology

Pathology Practical Book by Harsh Mohan

Concise Pathology for Exam Preparation by Bhattacharya

District Laboratory Practice in Tropical Countries, Part 2 by Monica

<http://www.medbox.org/district-laboratory-practice-in...part-2/download.pdf>

Websites

Webpath, Pathguy

ADDITIONAL LEARNING RESOURCES

Museum Models available in the museum are a rich learning resource for quick review of pathological diseased specimen related educational activities.

Skill Lab: Skills acquisition in a simulated environment in the skills lab involving experiential learning will ensure patient safety and will also help to build confidence in approaching the patients Videos/Podcasts.

Internet Resources Students will use easily accessible internet resources with added time flexibility to enrich and update their knowledge and its application.

TEST PREPARATION/MCQS

Review of pathology – Robbins and Pre-test in Pathology, BRS PATHOLOGY.

ASSESSMENT METHODS/PLAN:

The formative assessments will be planned according to table of specification TOS provided by UHS.

TOS THIRD YEAR M.B.B.S

<u>UNITS</u>	<u>MCQS</u>	<u>SEQS</u>
CELL INJURY	04	01
INFLAMMATION, HEALING & REPAIR	06+02	01+01
NEOPLASIA	09	01
GENETICS	02	01
HEMODYNAMICS	04	01

BACTERIOLOGY	14+GEN 04	03
MYCOBACTERIA	-	01
IMMUNITY	05	01
VIROLOGY	06	01
MYCOLOGY	04	01
PARASITOLOGY	05	01
<u>TOTAL</u>	65	14

Formative:**CLASS TESTS (DURING ACADEMIC SESSION)**

On 3rd Friday of every month (8.00-9.30 a.m)

On all topics covered during the month.

College ID card is a must, to appear in all tests.

Grading will be as follows (Mostly, depending on tests content)

$$\begin{aligned} \text{Total marks} &= \text{MCQs} + \text{SEQs} + \text{VIVA} + \text{COPY} \\ 100 &= 30 + 30 + 30 + 10 \end{aligned}$$

INTERNAL ASSESSMENT CRITERIA

- 10 % of total marks
- Total marks = 300
- Internal Assessment = 30 (15 marks in theory + 15 marks in Practical)
- Approximate weightage
 - Attendance 20% of total (6/30)
 - Assessment 60% each of total (18/30)
 - Behavior/Professionalism 20% of total (6/60)
- Break-up of 30 marks

Lecture/Practical attended	Test average	Midterm	Sendup	Behavior	Total
6	6	6	6	6	30

Lectures/Practicals attendance scale	
>90%	6

Tests, Midterm and Sendup scale	
>75%	6

80 - 89%	5
70 - 79%	4
60 - 69%	3
50 - 59%	2
<50%	1

65 - 75%	5
55 - 64%	4
45 - 54%	3
35 - 44%	2
<35%	1

- Marks for Practical Copy will be added with
 1. Sendup total
 2. Internal Examiner viva marks (30 marks viva + 5 marks Copy)

Summative: at the end of the year in college as sendups and later by U.H.S as professional examination. In form of SEQS, MCQS, VIVA, OSPE.

FORMATIVE ASSESMENTS RULES & REGULATIONS (PATHOLOGY DEPARTMENT, LMDC)

- Student must report to examination hall/venue, 30 minutes before the exam.
- Exam will begin sharp at the given time.
- No student will be allowed to enter the examination hall after 15 minutes of scheduled examination time.
- Students must sit according to their roll numbers mentioned on the seats.
- **Cell phones are strictly not allowed in examination hall.**
- If any student is found with cell phone in any mode (silent, switched off or on) he/she will be not be allowed to continue their exam.
- No students will be allowed to sit in exam without University Admit Card, LMDC College ID Card and Lab Coat
- Student must bring the following stationary items for the exam: Pen, Pencil, Eraser, and Sharpener.
- Indiscipline in the exam hall/venue is not acceptable. Students must not possess any written material or communicate with their fellow students.

FEEDBACK OF ACADEMIC YEAR:

Feedback regarding teachers/facilitators and teaching methodology will be taken after end of every chapter and a collective overall feedback will be taken at the end of the year.
