

# SYLLABUS

Course Name	: Pathology	علم الأمراض	: اسم المقرر
Course Code & No	: Path 211	مرض ٢١١	: رقم المقرر ورمزه
Credit hours	: 10 (6 + 4)	(٤ + ٦) ١٠	: الساعات المعتمده
Duration	: 26 Weeks	٢٦ اسبوع	: مدة المقرر
Study year	: 2 <sup>nd</sup> Year	الثانيه	: سنة الدراسة

6 = Theoretical

4 = Laboratory Tutorial and Practical

**Revised by** : Histopathology / Haematology/ Department of Pathology

**Course Development Committee** :

Name	Title	Position
Prof. M. O. Al-Sohaibani	MBBS, FCAP, FRCPath.	Professor & Consultant Histopathologist
Dr. Maha Arafah	MD, KSFP	Assistant Professor & Consultant Histopathologist
Dr. Shihab Al-Mashhadani	MBCHB, DCP, D.Path, FRCPA	Associate Professor & Consultant Haematologist

## **TABLE OF CONTENTS**

<b>NO.</b>	<b>ITEM</b>	<b>PAGE NO.</b>
1	Introduction and Course Description.	3
2	Prerequisites & Intended Students.	3
3	Course Aims and Objectives.	3
4	Course Contents.	3 – 18
5	Students Assessment & Evaluation.	19
6	Resources.	19

## **Introduction and Course Description:**

This course provided the medical student with the knowledge in pathologic basis of diseases. This includes an introduction to the basic concepts of disease process, aetiology, pathogenesis, pathologic features and related clinical features with prognosis and relevant molecular biological and biochemical markers of diseases. In addition, the course include discussion of disease process of each system in detail with covering of immunity related diseases and environmental related diseases. We hope that you will find this attachment useful and enjoyable. To achieve the maximum benefit of this course; hard work and appropriate methods of learning are the keys for that target.

## **Prerequisites & Intended Students:**

This course is intended to students in the second year with the prerequisite of successful completion of the first year, College of Medicine Courses.

## **Course Aims and Objectives:**

By end of the course the medical student shuld have:

- 3.1 Basic understanding of pathologic basis of diseases.
- 3.2 Aetiology & pathogenesis and clinical features.
- 3.3 Molecular basis of disease.
- 3.4 Epidemiological feature of diseases.
- 3.5 Proper use of clinical laboratory.
- 3.6 Prognosis and fate of diseases.
- 3.7 Methods used in making diagnosis.

## **Course Contents:**

- 4.1 General Pathology.
- 4.2 Immunopathology.
- 4.3 Systemic Pathology

## **4.2 Details of Contents:**

### **1. Introduction to Pathology:**

#### **Lectures:**

- 4.2.1 Definition of Pathology.
- 4.2.2 Subdivisions of Pathology.
- 4.2.3 Characteristics of disease: Incidence, Aetiology, Pathogenesis, Morphological and Clinical Features.
- 4.2.4 Methods used in making diagnoses: biopsies-cytology.
- 4.2.5 Definition and role of autopsy.

### **2A. Inflammation, repair and regeneration:**

#### **Lectures:**

- 4.2.2.1 Definition, aetiology and manifestations of inflammation.
- 4.2.2.2 Cells involved in inflammation and their role (neutrophils, basophils, eosinophils, mast cells macrophages and lymphocytes).
- 4.2.2.3 Chemical mediators of inflammation and the inflammatory response.
- 4.2.2.4 Vascular and cellular phases of inflammation – chemotaxis.
- 4.2.2.5 Types of inflammation: Acute-chronic. Wound healing and repair.
- 4.2.2.6 Factors inhibiting repair – healing of bone fracture.

## **2B. Inflammation, repair and regeneration:**

### **Practical & Tutorial:**

- 4.2.2.7 Fibrinous pericarditis.
- 4.2.2.8 Acute suppurative appendicitis.
- 4.2.2.9 Foreign body reaction (Pilonidal sinus).
- 4.2.2.10 Granulation tissue.

## **3A. Cell Injury:**

### **Lectures:**

- 4.2.3.1 Cellular patterns of response to stress-reversible and irreversible cell injury.
- 4.2.3.2 Morphological reactions to persistent stress injury and ultrastructural changes caused by cell injury.
- 4.2.3.3 Disorders of intracellular storage: fat, glycogen, iron, lipofuscin, melanin.
- 4.2.3.4 Abnormal calcification, necrosis, apoptosis, and ischaemic cell injury. Cell injury caused by oxygen radicals.
- 4.2.3.5 Disturbances of uric acid metabolism.
- 4.2.3.6 Amyloidosis.

## **3B. Cell Injury:**

### **Practical & Tutorial:**

- 4.2.3.7 Fatty change of the liver.
- 4.2.3.8 Amyloidosis of the liver.
- 4.2.3.9 Amyloidosis of the kidney.
- 4.2.3.10 Electron micrograph of amyloid fibrils.
- 4.2.3.11 Dystrophic calcification.

#### **4A. Hemodynamic (Circulatory) disorders:**

##### **Lectures:**

- 4.2.4.1 Haemorrhage: definition – causes and manifestations: haemothorax – haemopericardium, haemarthrosis, haematoma, purpura, ecchymosis and petechia.
- 4.2.4.2 Hyperemia (lung, liver, spleen) and oedema.
- 4.2.4.3 Thrombosis, embolism and infarction.
- 4.2.4.4 Shock: definition, pathogenesis and causes – pathological changes in various organs: heart, lung liver and kidney.

#### **4B. Hemodynamic (Circulatory) disorders:**

##### **Practical & Tutorial:**

- 4.2.4.5 Chronic venous congestion of the liver.
- 4.2.4.6 Chronic venous congestion of the lung.
- 4.2.4.7 Organizing thrombus.
- 4.2.4.8 Recent myocardial infarction.
- 4.2.4.9 Infarction of the kidney.

#### **5A. Granulomatous Diseases :**

##### **Lectures:**

- 4.2.5.1 Definition and mechanism of granuloma formation.
- 4.2.5.2 Causes of granulomatous diseases.
- 4.2.5.3 Tuberculosis (general and systemic).
- 4.2.5.4 Leprosy.
- 4.2.5.5 Sarcoidosis.
- 4.2.5.6 Schistosomiasis: life cycle of parasite and incidence. Pathology of urinary, hepatic and intestinal schistosomiasis.

## **5B. Hemodynamic (Circulatory) disorders:**

### **Practical & Tutorial:**

4.2.5.7 Chronic venous congestion of the liver.

4.2.5.8 Chronic venous congestion of the lung.

4.2.5.9 Organizing thrombus.

4.2.5.10 Recent myocardial infarction.

4.2.5.11 Infarction of the kidney.

## **6A. Disorder of growth.**

### **Lectures:**

4.2.6.1 Atrophy, hypertrophy, hyperplasia, metaplasia, dysplasia and carcinoma in situ.

## **6B. Disorder of growth.**

### **Practical & Tutorial:**

4.2.6.2 Cystic hyperplasia of the endometrium.

4.2.6.3 Fibrocystic changes and epithelial hyperplasia of the breast.

## **7A Neoplasia – benign tumours.**

### **Lectures:**

4.2.7.1 Definition of neoplasia – characteristics of benign and malignant tumours. Epithelial and connective tissue tumours.

4.2.7.2 Teratoma, embryonal tumours and hamartomas.

4.2.7.3 Histological diagnosis of malignancy – invasion and metastasis. The grading and staging of cancers.

4.2.7.4 Aetiology of cancer: chemical and viral carcinogenesis.

4.2.7.5 Human tumor oncogenes.

4.2.7.6 Tumours suppressor genes (The Retinoblastoma (RB) gene and the P53 gene) and apoptosis.

4.2.7.7 The systemic effects of cancer on the host – Diagnosis of cancer and tumours markers.

## **7B Neoplasia - benign tumours:**

### **Practical & Tutorial:**

4.2.7.8 Intradermal naevus.

4.2.7.9 Leiomyoma.

4.2.7.10 Chondroma.

4.2.7.11 Hemangioma.

4.2.7.12 Fibroadenoma of the breast.

## **7C Neoplasia - malignant tumours:**

### **Practical & Tutorial:**

4.2.7.13 Basal cell carcinoma of the skin.

4.2.7.14 Squamous cell carcinoma of the skin.

4.2.7.15 Adenocarcinoma of the large intestine.

4.2.7.16 Mucoïd carcinoma of the large intestine.

4.2.7.17 Fibrosarcoma.

## **8A Environmental and Nutritional Pathology:**

### **Lectures:**

4.2.8.1 Alcoholism: pathological effects on liver, heart, pancreas, skeletal muscles, endocrine system, G.I. tract, blood, nervous system.



- 4.2.8.2 Drug abuse (heroin and stimulants) – Iatrogenic drug injury (contraceptive pills).
- 4.2.8.3 Environmental chemicals and metals.
- 4.2.8.4 Thermal and physical injuries.
- 4.2.8.5 Radiation injury.
- 4.2.8.6 Nutritional disorders: obesity, marasmus, Kwashiorkor, vitamin deficiencies: Vitamin A, thiamine, niacin, ascorbic acid and vitamin K.

## **9 Immunopathology:**

### **Lectures:**

- 4.2.9.1 Immune complex diseases (with special reference to glomerulonephritis).
- 4.2.9.2 Auto-immune diseases.
- 4.2.9.3 Immunodeficiency diseases.

## **10A Cardiovascular System:**

### **Lectures:**

- 4.2.10.1 Ischaemic heart disease, myocardial infarction.
- 4.2.10.2 Hypertension.
- 4.2.10.3 Rheumatic heart disease.
- 4.2.10.4 Endocarditis, pericarditis.
- 4.2.10.5 Vasculitis (classification, polyarteritis nodosa, Buerger's disease), aneurysm.
- 4.2.10.6 Atherosclerosis.
- 4.2.10.7 Congenital heart disease.

## **10B Cardiovascular System:**

### **Practical & Tutorial:**

- 4.2.10.8 Acute rheumatic myocarditis.
- 4.2.10.9 Rheumatic valvulitis.
- 4.2.10.10 Coronary atherosclerosis.
- 4.2.10.11 Thromboangitis obliterans (Buerger's Disease).

## **10C Cardiovascular System:**

### **Museum**

- 3.2.10.11 Fibrinous pericarditis.
- 3.2.10.12 Vegetations of rheumatic mitral and aortic valves.
- 3.2.10.13 Myocardial infarction.
- 3.2.10.14 Left ventricular hypertrophy.
- 3.2.10.15 Aneurysm of abdominal aorta.
- 3.2.10.16 Atheroma of aorta.

## **11A Respiratory System:**

### **Lectures:**

- 4.2.11.1 Bronchiectasis, bronchial asthma.
- 4.2.11.2 Emphysema, pulmonary collapse.
- 4.2.11.3 The pneumonias.
- 4.2.11.4 The pneumoconiosis, pulmonary fibrosis.
- 4.2.11.5 Interstitial lung disease.
- 4.2.11.6 Tumors of the upper respiratory tract and tumors of the lungs.

## **11B Respiratory System:**

### **Practical & Tutorial:**

- 4.2.11.7 Lobar pneumonia.
- 4.2.11.8 Bronchopneumonia.
- 4.2.11.9 Emphysema.
- 4.2.11.10 Squamous carcinoma of the lung.

## **11C Respiratory System:**

### **Museum:**

- 4.2.11.11 Bronchiectasis.
- 4.2.11.12 Bronchopneumonia.
- 4.2.11.13 Lobar pneumonia.
- 4.2.11.14 Bronchogenic carcinoma.
- 4.2.11.15 Metastatic carcinoma of the lung.
- 4.2.11.16 Empyema.

## **12A Alimentary System:**

### **Lectures:**

- 4.2.12.1 Tumors of the oral cavity, salivary glands and oesophagus.
- 4.2.12.2 Peptic ulcer.
- 4.2.12.3 Tumors of the stomach.
- 4.2.12.4 Malabsorption (celiac disease, tropical sprue), Crohn's disease.
- 4.2.12.5 Ulcerative colitis, amebic and bacillary dysenteries.
- 4.2.12.6 Tumours of the small and large intestines.

## **12B Alimentary System:**

### **Practical & Tutorial:**

- 4.2.12.7 Pleomorphic adenoma of the salivary gland.
- 4.2.12.8 Carcinoid tumor of the intestine.
- 4.2.12.9 Crohn's disease of the intestine.
- 4.2.12.10 Ulcerative colitis.

## **12C Alimentary System:**

### **Museum:**

- 4.2.12.11 Carcinoma of the esophagus.
- 4.2.12.12 Chronic gastric ulcer.
- 4.2.12.13 Chronic duodenal ulcer.
- 4.2.12.14 Carcinoma of the stomach.
- 4.2.12.15 Crohn's disease.
- 4.2.12.16 Lipoma of the intestine.
- 4.2.12.17 Ulcerative colitis.
- 4.2.12.18 Carcinoma of the colon and rectum.
- 4.2.12.19 Familial polyposis.
- 4.2.12.20 Colon carcinoma.

## **13A Hepatobiliary System and Pancreas:**

### **Lectures:**

- 4.2.13.1 Hepatitis.
- 4.2.13.2 Cirrhosis.

- 4.2.13.3 Tumors of the liver.
- 4.2.13.4 Diseases of the gallbladder.
- 4.2.13.5 Disease of the pancreas.
- 4.2.13.6 Pathology of diabetes.

### **13B Liver and Gallbladder:**

#### **Practical & Tutorial:**

- 4.2.13.7 Chronic active hepatitis.
- 4.2.13.8 Cirrhosis.
- 4.2.13.9 Hepatocellular carcinoma.
- 4.2.13.10 Chronic cholecystitis.

### **13C Hepatobiliary System and Pancreas:**

#### **Museum:**

- 4.2.13.11 Chronic venous congestion of the liver.
- 4.2.13.12 Cirrhosis.
- 4.2.13.13 Hepatoma.
- 4.2.13.14 Metastatic carcinoma of the liver.
- 4.2.13.15 Chronic cholecystitis with stones.

### **14A Urinary System (The Kidney):**

#### **Lectures:**

- 4.2.14.1 Glomerulonephritis.
- 4.2.14.2 Nephrotic syndrome.
- 4.2.14.3 Nephrotic syndrome.

- 4.2.14.4 Pyelonephritis.
- 4.2.14.5 Urinary tract obstruction, urolithiasis.
- 4.2.14.6 Tumors of the kidney and urinary bladder.

#### **14B Urinary System (The Kidney):**

##### **Practical & Tutorial:**

- 4.2.14.7 Post-streptococcal glomerulonephritis.
- 4.2.14.8 Electron micrograph of immune deposits.
- 4.2.14.9 Chronic pyelonephritis.
- 4.2.14.10 Renal cell carcinoma.

#### **14C Urinary System (The Kidney):**

##### **Museum:**

- 4.2.14.11 Hydronephrosis.
- 4.2.14.12 Pyonephrosis.
- 4.2.14.13 Polycystic kidney.
- 4.2.14.14 Renal carcinoma.
- 4.2.14.15 Wilm's tumor.
- 4.2.14.16 Carcinoma of urinary bladder.

#### **15A Genital System:**

##### **Lectures:**

- 4.2.15.1 Carcinoma of the cervix.
- 4.2.15.2 Endometrial hyperplasia, endometrial carcinoma.
- 4.2.15.3 Tumors and cysts of the ovary.

- 4.2.15.4 Breast hyperplasia and breast tumours.
- 4.2.15.5 Prostatic hyperplasia and prostatic carcinoma.
- 4.2.15.6 Tumours of the testis.

### **15B Male & Female Genital System:**

#### **Practical & Tutorial:**

- 4.2.15.7 Intraductal carcinoma of the breast.
- 4.2.15.8 Invasive duct carcinoma of the breast.
- 4.2.15.9 Paget's disease of the breast.
- 4.2.15.10 Dermoid cyst of the ovary.
- 4.2.15.11 Hyperplasia of the prostate.
- 4.2.15.12 Seminoma of the testis.

### **15C Genital System:**

#### **Museum:**

- 4.2.15.13 Seminoma of the testis.
- 4.2.15.14 Prostatic hyperplasia.
- 4.2.15.15 Multiple leiomyoma.
- 4.2.15.16 Mucinouscystadenoma of the ovary.
- 4.2.15.17 Dermoid cyst of the ovary.
- 4.2.15.18 Carcinoma of the breast.
- 4.2.15.19 Fibroadenoma of the breast.

### **16A Lymph nodes and lymphoid tissue:**

#### **Lectures:**

- 4.2.16.1 Hodgkin's lymphoma.
- 4.2.16.2 Non-Hodgkin's lymphoma.

## **16B Lymph nodes and lymphoid tissue:**

### **Practical & Tutorial:**

- 4.2.16.3 Hodgkins disease.
- 4.2.16.4 Non-Hodgkin's lymphoma.

## **16C Lymph nodes and lymphoid tissue:**

### **Museum:**

- 4.2.16.5 Congestive splenomegaly.
- 4.2.16.6 Infarction of the spleen.
- 4.2.16.7 Hodgkin's disease – spleen.
- 4.2.16.8 Non-Hodgkin's lymphoma spleen.
- 4.2.16.9 Tuberculous lymphadenitis.

## **17A Central nervous system:**

### **Lectures:**

- 4.2.17.1 Meningitis, encephalitis.
- 4.2.17.2 Intracranial tumors, casues of space occupying lesions.

## **17B Central nervous system:**

### **Practical & Tutorial:**

- 4.2.17.3 Meningioma.
- 4.2.17.4 Astrocytoma.

## **17C Central nervous system:**

### **Museum:**

- 4.2.17.5 Pontine haemorrhage.
- 4.2.17.6 Meningioma of the dura.
- 4.2.17.7 Brain abscess.



## **18A Orthopaedic System:**

### **Lectures:**

4.2.18.1 Inflammation.

4.2.18.2 Tumours.

## **19A Haematology**

### **Lectures**

4.2.19.1 Haematopoiesis, classification of anaemia.

4.2.19.2 Iron deficiency anaemia.

4.2.19.3 Introduction to haemolytic anaemia and membranopathies.

4.2.19.4 Enzymopathies.

4.2.19.5 Megaloblastic anaemia.

4.2.19.6 Alpha-thalassaemia.

4.2.19.7 Beta-thalassaemia.

4.2.19.8 Sickle cell anaemia and other hemoglobin disorders.

4.2.19.9 Acquired hemolytic anaemia.

4.2.19.10 Blood groups, blood products and blood transfusion.

4.2.19.11 Hereditary and acquired platelets disorders.

4.2.19.12 Hereditary and acquired coagulation disorders.

4.2.19.13 Acute leukaemias.

4.2.19.14 Myeloproliferative disorders.

4.2.19.15 Lympho-proliferative disorders.

## **19B Haematology**

### **Practical & Tutorial:**

4.2.19.16 Blood films on all types of anaemia.

4.2.19.17 Bone marrows and trephine biopsies on iron deficiency anaemia, megaloblastic anaemias, acute leukaemias, chronic leukaemias, and lymphomas. (Hodgkin's and Non-Hodgkin's)

## **Student Assessment and Evaluation:**

Students will be evaluated as follow:

- |    |   |          |
|----|---|----------|
| 1. | Continuous assessment test [ 1 ] (MCQ). | 10 Marks |
| 2. | Mid-term                                | 20 Marks |
| 3. | Continuous assessment test [ 2 ] (MCQ). | 10 Marks |
| 4. | Practical Exam                          | 20 Marks |
| 5. | A final written examination (MCQ).      | 40 Marks |

## **Resources:**

### **HISTOPATHOLOGY:**

1. Robbin's Basic Pathology.  
Author: Kumar, Cortran, Robbins  
7<sup>th</sup> Edition, Publisher: Saunders  
ISBN #: 08089-0007-2
2. General and systemic pathology.  
Author: Underwood  
4<sup>th</sup> Edition, Publisher : Elsevier Churchill Livingstone.  
ISBN#: 0430 7334 1
3. Wheater's Basic Histopathology A Color Atlas & Text.  
Author: A Steven J. S. Lowe, B. Young  
4<sup>th</sup> Edition, Publisher: Elsevier Churchill Livingstone  
ISBN#: 04430 70016

### **HAEMATOLOGY:**

1. Essential Haematology  
Author: A.V.H. Offbrand, J.E. Pettit, P.A.H. Moss  
Latest Edition, Publisher: Blackwell Science Ltd.  
Osney Mead, Oxford OX20E2.
2. Practical Haematology  
Author: Sir John V. Dacie, S.M. Lewis  
Latest Edition, Publisher: Churchill Livingstone  
London, Edinburgh, Newyork and Melburne