PHARMACOLOGY CURRICULUM FOR UNDERGRADUATE STUDENTS

	Title	Hours	Lecturer	Day and date
I -General Pharmacology		Total 24 hours		
1.	Introduction	1	د. جواد	
2.	Evaluation of new drugs	2	د. جواد	
3.	Pharmacodynamics	2	د. نبيل	
4.	Pharmacokinetics	5	د. عبد الله	
5.	Pharmacogenetics	1	د. سوفيك	
6.	Cholinergic system	3	د. سوفيك	
7.	Adrenergic system	5	د. سوفيك	
8.	Antianginal drugs	1	د. جواد	
9.	Histamine and antihistamines	2	د. نبيل	
10	Serotonin , Kinins and Prostaglandins	2	د. جواد	
II. Systemic Pharmacology		Total 18 hours		
1.Central nervous system				
11	Anxiolytics and hypnotics	2	د. نبيل	
12	Antipsychotics	1	د. نبيل	
13	Antidepressants	1	د. نبيل	
14	Antiepileptics	1	د. عبد الله	
15	Antiparkinsonian drugs	1	د.عبدالله	

16	**Non-narcotic and NSAIDs**	**3**	**د. نبيل**	
17	**Narcotic analgesics**	**2**	**د. جواد**	
18	**Drugs for gout**	**1**	**د. سوفيك**	
19	**Antirheumatic drugs**	**1**	**د. سوفيك**	
20	**Drug treatment for headache**	**1**	**د. عبد الله**	
21	**General anaesthesia**	**2**	**د. عبد الله**	
22	**Local anaesthesia**	**1**	**د. نبيل**	
23	**Neuromuscular blocking drugs**	**1**	**د. عبد الله**	

PHARMACOLOGY CURRICULUM
2013\2014 Second Term (Total 47 hours)

24	**Drugs acting on GIT**	**3**	**د. نبيل**	
25	**Drugs acting on respiratory tract**	**2**	**د. عبد الله**	
26	**Diuretics**	**2**	**د. نبيل**	
Drugs acting on the heart				
27	**Antihypertensive**	**2**	**د. نبيل**	
28	**Antiarrhythmic drugs**	**3**	**د. جواد**	
29	**Hypolipidemic drugs**	**1**	**د. سوفيك**	
30	**Digitalis in heart failure**	**1**	**د. نبيل**	
6. Blood				
31	**Anti-coagulants**	**2**	**د. عبد الله**	
32	**Anti-anaemic drugs and vitamins**	**2**	**د. عبد الله**	
7. Antimicrobials				

33	**Antibiotics (Part one)**	**3**	د. جواد	
34	**Antibiotics (Part two)**	**3**	د. عبد الله	
35	**Antifungal**	**1**	د. نبيل	
36	**Antiviral**	**1**	د. نبيل	
37	**Antiprotozoal and anthelmintic**	**2**	د. سوفيك	
38	**Antituberculosis drugs**	**1**	د. سوفيك	
39	**Antimalarial drugs**	**1**	د. جواد	
40	**Antiseptics**	**1**	د. عبد الله	
8. Hormones				
41	**Corticosteroids**	**2**	د. عبد الله	
42	**Antidiabetics**	**2**	د. جواد	
43	**Thyroids hormones and antithyroid**	**1**	د. سوفيك	
44	**Vasopressin, Oxytocin and tocolytic drugs**	**2**	د. سوفيك	
45	**Sex hormones, contraceptive drugs**	**3**	د. نبيل	
46	**Cytotoxic drugs**	**2**	د. عبد الله	
47	**Immunopharmacology**	**1**	د. نبيل	
48	**Drugs interaction**	**1**	د. سوفيك	
49	**Drug poisoning**	**2**	د. جواد	
50	**Skin Pharmacology**	**1**	د. سوفيك	

Reference Book: Clinical Pharmacology, Dr. Laurence, 2008

Staff of the Department of Pharmacology
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Revised October 2011

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Major objectives in Pharmacology course

Adequate knowledge and competence in pharmacology form the basis for rational drug therapy in medical practice.
The student by the end of the course should be able to:

1.Understand the mechanism of drug action at molecular as well as cellular level, both desirable and adverse.

2.Understand the principles of pharmacokinetics i.e. drug absorption, distribution, metabolism and excretion and be able to apply these principles in therapeutic practice.

3.Recognize that drugs have action at all systems and should be able to group drugs with common pharmacological actions, and appreciate that this classification is not absolute.

4.Be able to know one or two prototype drug(s) of each pharmacological group especially those of clinical importance.

5.Acquire a comprehensive description of the major group of drugs as applied to medical practice and be sufficiently prepared to gather information on new drugs.

6.Know the common serious side effects and contraindications of each prototype drug, different mechanisms of drug toxicity, interactions and factors modifying drug action.

7.Know the general principles of acute drug poisoning and other drug related problems as addiction and abuse.

1.Introduction: 1 Lecture

Definitions of a drug (sources of drugs, an ideal drug, main/side/toxic effects of a drug, drug action and drug effect, counterfeit drugs, essential drugs), pharmacology (pharmacopdynamics, pharmacokinetics), toxicology, pharmacy, clinical pharmacology, therapeutics, pharmacogenetics.

Textbooks in pharmacology, methods of assessments and examinations, code of conduct in pharmacology.

2. Evaluation of new drugs: 2 Lectures

Discovery of new drugs, pre-clinical evaluation (in vitro and in vivo testing), acute, subacute and chronic toxicity tests, LD50, therapeutic index, teratogenecity, mutagenecity and carcinogenicity. Clinical trials: aim, phases, designs, inclusion/exclusion criteria, use of placebo, sources of bias in clinical trials and measures used to eliminate them.

3.Pharmacokinetics: 5 Lectures

Definition. Drug passage across cell membrane; passive diffusion, active transport, facilitated diffusion, filtration. Order of the pharmacokinetic process. Plasma elimination half life. Staedy state concentration, biological half life. Absorption: sites, enterohepatic circulation, bioavailability, factors affecting systemic availability, pre-systemic (first-pass) elimination,effect of food on drug kinetics,. Distribution:volume of distribution, protein binding. Metabolism: results of metabolism of drugs, sites of metabolism, phases of metabolism, enzyme induction, enzyme inhibition. Elimination: excretion; renal, pulmonary, milk, fecal.

4.Pharmacogenetics: 1 Lecture

Variation in human response to drugs: pharmacokinetic and pharmacodynamic variations. Genetic polymorphism; acetylator

status. G6PD deficiency and response to drugs. Genetic factors that alter drug response.

5.Mechanism of drug action: 2 Lectures

Mechanisms of action. Receptors: binding to receptors, second messenger, receptor regulation. Dose-response relationship: agonist, antagonist, affinity, potency, efficacy, factors modifying drug response.

6.Drug interactions: 1 Lecture

Definitions. Types of interaction: harmful and useful. Pharmacological basis of drug interaction: pharmacokinetic interactions; pharmacodynamic interactions; antagonism, synergism. Interaction of drugs with food. Drug interactions outside the body, at site of absorption, during distribution, on or body systems, during metabolism, during excretiuon.

7.Drugs acting on parasympathetic system: 3 Lectures

Brief anatomical description of autonomic nervous system. Sites of acetyl choline action as a neurotransmitter. Synthesis and enzymatic degradation of acetyl choline. Cholinomimetic drugs. Cholinesterase inhibitors. Antimuscarinic drugs. Atropine as a prototype drug. Hyoscine and atropine-like drugs. Pharmacological actions and contraindications. Organophosphorus compounds poisoning, clinical features and management.

8.Drugs acting on sympathetic system: 5 Lectures

Catecholamines, biosynthesis and metabolism. Adrenergic agonists (alpha and beta). Therapeutic uses of sympathomimetic drugs. Adrenergic blockers, selectivity of adrenergic blocking and basic pharmacological action. Classification of α and β adrenoceptors blockers. Adrenergic neuron blockers.

9.Antihypertensive drugs: 2 Lectures

Definition of hypertension, factors regulating blood pressure. Classification of antihypertensive drugs. Diuretics, centrally acting drugs, vasodilators, calcium channels blockers and angiotensin converting enzyme inhibitors, angiotensin II receptor blockers, Beta-blockers. Non-pharmacological treatment of hypertension.

10.Antiarrhythmic dugs: 3 Lectures

Pathophysiology of cardiac arrhythmias. Types of arrhythmias. Classification of antiarrhythmic drugs. Pharmacology of lignocaine, procainamide, quinidine, disopyramide, β-blockers and calcium channel blockers.

11.Drugs used in heart failure: 1 Lecture

Pathophysiology of heart failure. Cardiac glycosides. Pharmacology of digoxin as a prototype drug. Other cardiac glycosides. Vasodilators, and ACE inhibitors in heart failure. New inotropic drugs as amrinone and milrinone.

12.Antianginal drugs: 1 Lecture

Definition of angina. Nitrates and nitrites: pharmacological features of GTN, mechanism of action, route of drug administration, side effects and tolerance. Other drugs useful in treatment of angina as calcium channel blockers and beta blockers, role of anti-platelets in angina.

13.Autacoids: 3 Lectures

Definition of autacoids. Histamine and antihistamines. H1 and H2blockers. Sodium cromoglycate as inhibitor of histamine release.Non-sedating antihistamines as terfenadine. Ketotifen and pizotifen. Serotonin (5HT) and its antagonists such as ondansetron and its use as antiemetic in chemotherapy induced vomiting. Prostaglandins, synthesis and pharmacological actions and clinical uses. Drugs that act via prostaglandin inhibition.

14.Analgesics: Narcotics and Non-narcotics: 5 Lectures

Narcotics: endogenous enkephalins and endorphins. Opiates receptors. Mechanism of action of narcotic analgesics. Morphine as a prototype drug. Other narcotic analgesics as pethidine, codeine, methadone, tramadole and propoxyphene. Opiate antagonists: Naloxone and nalorphine.

Non- narcotic analgesics (Non steroidal anti-inflammatory drugs; NSAIDs: classifications, COX1-inhibitors such as salicylates, ibuprofen, indomethacin, COX2-inhibitors such as celecoxib. Differences between COX1 and COX2 in terms of their side effects. Other uses of NSAIDs with mechanism of action such as aspirin as anti-thrombotic. Paracetamol.

15.Drugs used in rheumatoid arthritis and gout: 2 Lectures

Aims of treatment of rheumatoid arthritis, disease modifying drugs, role of corticosteroids in rheumatoid arthritis.
Drugs useful in acute attack of gout: Non-steroidal anti-inflammatory drugs and colchicines. Drugs useful in chronic gout: probenecid and allopurinol.

16.Drugs used in migraine: 1 Lecture

Definition. Ergot alkaloids, analgesics, β- blockers and calcium channel blockers. The role of antiemetics.

17.Drugs in hyperlipidemia: 1 Lecture

Statins, cholestyramine, nicotinic acid, gemfibrozil.

18.Antibacterial agents: 6 Lectures

Definition and introduction to antimicrobial therapy. Mechanism of action and resistance to antimicrobial agents. Sulfonamides and urinary tract antiseptics. Penicillins, cephalosporins (first to fourth generations), imipenem, vancomycin aminoglycosides, macrolides as erythromycin, clindamycin, tetracyclines, fusidic acid, chloramphenicol and quinolones.

19.Antituberculous drugs: 1 Lecture

Classification, first and second line drugs. Rifampicin, isoniazid, ethambutol, cycloserine, thiacetazone. Para-aminosalicylic acid and streptomycin.

20.Antifungal drugs: 1 Lecture

Local and systemic antifungal drugs. Amphotericin, griseofulvin, nystatin and flucytosine.

21.Antiviral drugs: 1 Lecture

Why it is difficult to treat viral infections? Classification of antiviral drugs according to mechanism and site of action . Aciclovir, antiretroviral agents as zidovudine, lamivudine and stavudine. Protease inhibitors as indinavir, ritinovir. Antiinfluenza agents asd am,antadine, rimatadine and osdeltamivir.

22.Antimalarial drugs: 1 Lecture

Chloroquine (possible mechanism of action), quinine, primaquine, sulfonamides and combination antimalarial drugs. Anti-malarial drugs and G6PD. New antimalarial drugs

23.Amoebicidal drugs: 1 Lecture

Metronidazole, diloxanide furoate, chloroquine, tetracycline, iodoquinol.

24.Anthelminthic drugs: 1 Lecture

Piperazine, pyrivinium pamoate, bephenium hydroxynaphthoate, mebendazole, thiabendazole and levamisole. Antischistosomiasis: niridazole and emetine.

25.Drugs acting in gastrointestinal tract: 4 Lectures

1. antacids
2. antiulcer drugs include: H2-blockers, proton pump inhibitors,

sucralfate, bismuth chelate , prostaglandins analogues as misoprostol.

Antibiotics in the eradiction of H.pylori.

3. laxatives and purgatives
4. antidiarrhoeal drugs
5. antiemetic drugs as metoclopramide and domperidone
6. drugs useful in ulcerative colitis
7. drugs for dissolution of gall stones

26.Drugs acting on the central nervous system:

*Hypnotics and anxiolytics: 2 Lectures

Definitions. Benzodiazpines as diazepam, chlordiazepoxide, lorazepam and nitrazepam. Benzodiazepines antagonists as flumazenil. Meprobamate, chlormethiazole and chloralhydrate. Abuse potential of these drugs. Other drugs as beta-blockers and antihistamines in anxiety

*Antidepressants: 1 Lecture

Tricyclic antidepressants; imipramine, amitriptyline, clomipramine, mechanism of action, clinical uses and adverse effects.Selective serotonine reuptake inhibitors as fluoxetine and paroxetine. Other antidepressants; maprotiline, nomifenesine and mianserine. Monoamine oxidase inhibitors. Lithium, clinical uses and adverse effects.

*Antipsychotics: 1 Lecture

Brief definition of psychosis. Classification of antipsychotic drugs. Pharmacology of chlorpromazine as a prototype drug of phenothiazines.

Atypical antipsychotics as clozapine and olanzapine

*Antiepileptic drugs: 1 Lecture

Definition and general classification of epilepsy. Main antiepileptic drugs: phenytoin, carbamazepine, sodium valproate,ethosuximide,

barbiturate and benzodiazepines. The newer antiepileptic drugs as vigabatrin, lamotrigine, gabapentin and topiramete

*General anesthetics: 2 Lectures

Definition, classification, stages of general anesthesia. Inhalational and intravenous anesthetics. Pre-anesthetic medication.

*Local anesthetics: 1 Lecture

Types of local anesthetics,. Mechanism of action of LA. Lidocaine as a prototype drug . Methjods of prolongation of duration of action of LA. Methods of administration of LA. Other drugs as bupivacaine and mepivacaine.

*Muscle relaxants: 1 Lecture

Neuromuscular transmission, classification of muscle relaxants; depolarizing and non-depolarizing agents. Peripherally and centrally acting muscle relaxants. Dantroline, baclofen and benzodiazepines.

*Antiparkinson's drugs 1 Lecture

Definition of Parkinson disease and pathophysiology. Cholinergic and dopaminergic mechanisms in Parkinson disease. Drugs useful in Parkinson disease; L-dopa, decarboxylase inhibitors, dopamine agonists as bromocriptine and amantadine. MAOI as type B.

27.Dugs acting on uterine muscles: 1 Lecture

Oxytocin and ergometrine; pharmacology and mode of action, clinical uses. Prostaglandins as abortifitant drugs.

28.Vasopressin: 1 Lecture

Mechanism of action, clinical uses, vasopressin analogues.

29.Drugs acting on respiratory tract: 2 Lectures

Bronchodilators; β2 stimulants, xanthine derivatives. Mast cell stabilizers: sodium cromoglycate and ketotifen. Mucolytics and expectorants. Mechanism of cough and cough suppressants.

30.Drugs acting on endocrine system:

*Diabetes mellitus: 2 Lectures

Definition and clinical features. Insulin; action and different preparations, new routes of administration, side effects. Oral hypoglycemic drugs; sulphonylureas , biguanides, meglitinides, thiazolidindiones and α- glucosidase inhibitors. Drug interaction of sulphonylureas. Brief account on glucagon.

*Corticosteroids: 2 Lectures

Pharmacological actions of steroids, different preparations. Clinical uses, adverse effects of chronic steroid administration. Differences between glucocorticoids and mineralocorticoides. Differences between physiological and pharmacological doses of corticosteroides

*Sex hormones and contraceptive pills: 2 Lectures

Androgens; pharmacological actions and clinical uses. Abuse of androgensOestrogens; synthetic and natural. Pharmacological actions and clinical uses. Oral contraceptive pills types, pharmacological actions and clinical uses. Adverse effects and contraindications of the oral contraceptive pills.

*Anti-thyroid drugs: 1 Lecture

Thyroid hormones; biosynthesis and pharmacological actions. Pharmacology of carbimazole and propylthiouracil. The use of radio-active iodine.

31.Drugs acting on the kidneys: 2 Lectures

Renal handling of water and electrolytes. Diuretics; mode and site of action, classification and clinical uses, side effects. Drugs changing urinary PH and their clinical uses. Urinary tract antiseptics.

32.Drugs acting on blood:

*Anticoagulant drugs: 2 Lectures

Blood coagulation process. Heparin; unfractionated (UFH) and low molecular weight heparin (LMWH): mechanism of action, pharmacokinetics, clinical uses and adverse effects. Advantages of the use of LMWH on UFH. Platelets aggregation inhibitors, clopidogrel. Thrombolytic agents and drugs acting on the platelets. Vitamin K preparation and aminocaproaic acid.

*Antianemic drugs: 2 Lectures

Iron preparations. Clinical uses of folic acid and vitamin B12.

33.Cancer chemotherapeutic agents: 2 Lectures

Classification of cytotoxic drugs. Mechanism of action in general. Clinical uses and adverse effects of cytotoxic drugs.

34.Immunopharmacology: 1 Lecture

Indications for immunosupressants, ciclosporin, tacrolimus, mycophenolate mofetil, Corticosteroids, cytotoxic drugs as azathioprine,cyclophosphamide. Monoclonal antibodies as basiliximab and antilymphocytic immunoglobulins.

35.Alcohol and alcoholism: 1 Lecture

Metabolism and pharmacological action of ethanol. Acute and chronic actions of ethanol. Interactions with other drugs. Brief account on methanol poisoning.

36.Smoking: 1 Lecture

Acute effects of nicotine. Chronic effects of nicotine.

37.Vitamins and minerals: 1 Lecture

Water soluble vitamins; B-complex. Fat soluble vitamins; Vit. D and Vit. K. Calcium and iron.

38.Skin pharmacology: 1 Lecture

Principles of treating skin diseases. Dermatological preparations. Percutaneous absorption. Skin toxicology.

39.Drug poisoning: 1 Lecture

Heavy metal poisoning. Thallium poisoning. the use of chelating agents, activated charcoal, Berlin Blue (Prussian Blue for thallium poisoning)

40.Genetic engineering in pharmacology: 1 Lecture

The use of genetic engineering technology in the preparation of some drugs, such as insulin, growth hormone, oxytocin, interferons.

syllabus of Histopathology for third year

الفصل الأول: 60 ساعة
الفصل الثاني : 60 ساعة

Reference Books:

1-Robbin's Basic Pathology 8th Edition; Kumar, Abbas, Fausto & Mitchell 2007
2-Muir's Text Book of Pathology, 13th Edition; Roderick N M MacSween & KeithWhaley 1994
3-Stevens: Core pathology, 3ed edition 2010.
4- Practical booklet 2010

الفصل الاول

Subject	No. of lectures	
General Pathology		
1-Introduction	1 hour	د. سؤدد عاصم عبد القادر
2- Cell injury,Cell death and Adaptations	4 hours	د. سؤدد عاصم عبد القادر.
3-Inflammation,Healing & Repairs	8 hours	د. سوسن صالح الهارون
4- Microbial Infections	8hours	د. نبراس سليم المعمار
5- Immunopatholgy	6 hours	د. نبراس سليم + د. جاسم محمد الذياب
6-Disturbnces of blood flow and body fluid	5hours	د. سؤدد عاصم عبد القادر
7-Medical Genetics	5 hours	د. سعد عبد الباقي
8- Neoplasia	10hours	د. جاسم محمد الذياب

الفصل الثانى

Systemic Pathology

9-Blood& lymphatic's vessels….3hours د. سعد عبد الباقي

10- Heart……. 5hours . د. سعد عبد الباقي

11-Respiratory system…….. 9 hours د.جاسم محمد الذياب
12-Hematopoietic system…….7 hours د.صادق خلف

13- Lymphoreticular system……. 4hours. د. سوسن صالح الهارون

14-Oral cavity and gastro-
Intestinal tract…….……7hours .د. سؤدد عاصم عبد القادر
15-Liver, biliary tract & pancreas…7hours د.عبير علي حسين

16-Kidney & urinary tract system…8hours د. سوسن صالح الهارون

17-Female genital system……...5hours ..د. سؤدد عاصم عبد القادر
18-The breast…….……3hour … د. اسيل حامد جاسم

19-Male genital system ……..3hours د.جاسم محمد الذياب

20-Endocrine system…..……4hours . د. نور صبيح
21-Bone, joints and
skeletal muscles……4hours د.اسيل حامد جاسم
22-Central and peripheral
nervous system…… د. سعد عبد الباقي

B- Practical part (4 hours per week)the main objectives of practical sessions is to support the theory and to help the students to comprehend the basic principles in:

a- How to take specimens for Histopathological examination. The ways of preservation and fixation and the main histopathological techniques.
b-How to use the microscopes.

c- Examination of available of pathological specimens.
d- Examination of standard slides to demonstrate the microscopic changes in the diseased tissue or organ.

C- Tutorials (one hour per week) to give the student the opportunity for further information and to give the opportunity to the teachers to assess the standards of their methods of teaching.

	Subject	**Number of Lectures**
1	**Introduction**	**1**
	Definition & branches of pathology ıses and etiology of diseases ıogenesis and nature of diseases rphological changes of diseasePrognosis and ıplications	
2	**Cell injury, cell death and Adaptations**	**4**
	Overview of cellular response to stress & noxious stimuli Cellular adaptations to stress. -Hypertrophy -Hyperplasia -Atrophy -Metaplasia Causes of cell injury The morphology of cell and tissue injury -Reversible injury -Necrosis -Patterns of tissue necrosis -Subcellular responses to injury Mechanisms of cell injury Examples of irreversible cell injury and necrosis -Coagulative necrosis -Caseous necrosis	

	-Liquefactive necrosis -Fatty necrosis -Fibrinoid necrosis -Gangrenous necrosis Apoptosis Intracellular accumulations -Fatty change -Pigmentation (Exogenous and endogenous) -Pathological calcification	
3	**<u>Acute And Chronic Inflammation</u>**	**6**
	Overview of Inflammation - Definition - Causes Types: -Acute Inflammation *-Vascular changes* *-Change in vascular blood flow & caliber* *-Increased vascular permeability* *-Leukocytes cellular events* *-Leukocyte recruitment* *-Margination and rolling* *-Adhesion and transmigrations* *-Chemotaxis* *-Leukocytes activation* *-Phagocytosis* *-Killing and degradation of microbes* *-Outcomes of Acute Inflammation* *-Morphological patterns of acute Inflammation* *-Serous Inflammation* *-Fibrinous Inflammation*	

	-Suppurative (purulent) Inflammation *-Catarrhal inflammation* *-Ulceration* *-Gangrenous Inflammation* *-Pseudomembranous Inflammation* *-Chemical Mediators* *-Cell – derived mediators* *-Plasma protein – derived mediators* -Chronic Inflammation *-Chronic inflammatory cells and mediators* *-Granulomatous inflammation* *-Morphological pattern of chronic inflammation* Systemic effects of Inflammation	
4	**Tissue Repair: Regeneration, Healing and Fibrosis**	**2**
	Overview of tissue repair. -Regeneration *-The control of cell proliferation* *-The cell cycle* *-Proliferative capacities of tissues* *-Growth factors* *-Extracellular matrix (ECM) and cell-matrix interactions* *-Roles of extracellular matrix.* *-Components of extracellular Matrix* -Repair by connective tissue *-Angiogenesis* *-Migration of fibroblasts and ECM deposition* *(Scar formation)* *-ECM and Tissue Remodeling* Cutaneous wound healing	

	-Healing by first intention -Healing by second intention -Wound strength Pathologic Aspects of Repair Factors Affecting Wound Healing -Local Factors -Systemic Factors	
5	**<u>Microbial Infections</u>**	**8**
	Introduction to microbial infections Non-specific defense mechanisms Categories of infectious agents Routes of infections How microorganism can cause disease. Viral infections -Introduction -Mechanisms of viral injury at cellular level. -Transient viral infection -Latent viral infection -Slow viral infection -H1N1 viral infection Bacterial infections -Pathogenesis of bacterial infections -Acute bacterial infections -Acute bacterial infections general types -Common pyogenic bacteria -Gangrene *Definitionand types* -Chronic bacterial infections - *<u>Mycobacteriumtuberculosis</u>* *-Leprosy* *-Syphilis* *-Fungal infections*	

6	**Immunopathology**	**6**
	Introduction: Innate & adaptive immunity Cell & tissue of immune system Over review of normal immune responses Hypersensitivity diseases: -Types of Hypersensitivity diseases -*Type I HSR* -*Type II HSR* -*Type III HSR* -*Type IV HSR* -Rejection of transplants -Auto-immune disease -Immunodeficiency diseases -*Primary Immunodeficiency* -*Secondary immunodeficiency* -Amyloidosis	

7	**Disturbances of blood flow and body fluid**	**5**
	Introduction Edema and types Hyperemia andcongestion Hemorrhage Shock -Cardiogenic shock -Hypovolemic shock -Septic shock -Stages of shock Hypoxia -Ischemia -Infarction Review of normal homeostasis Thrombosis -Causes -Fate of thrombi Embolism	

	-Pulmonary thromboembolism -Systemic thromboembolism -Types of emboli	
8	**<u>Medical Genetics</u>**	**5**
	Mutations Mendelian disorders (Diseases caused by single-gene defects) -Transmission patterns of single-gene disorders *-Autosomal dominant disorders* *-Autosomal recessive disorders* *-X-linked disorders* Disorders wit multifactorial inheritance Cytogenetic disorders -Cytogenetic disorders involving autosomes *-Trisomy 21(Down syndrome)* -Cytogenetic disorders involving sex chromosomes *-Klinefelter syndrome* *-Turner syndrome* Single gene disorders with atypical patterns of inheritance -Triplet repeat mutation: Fragile X- syndrome -Diseases caused by mutation of mitochondrial genes	

	-Genomic imprinting: Prader-Willi and Angelman syndromes Congenital anomalies Diagnosis of genetic diseases -Florescence in situ hybridization -Molecular detection of genetic diseases -Indications for genetic analysis	
9	**<u>Neoplasia</u>**	**10**
	Definition Nomenclature Hamartoma Teratoma Characteristics of benign and malignant neoplasms. -Atypia & dysplasia -Tumor grade and stage -Invasion & metastasis *-Mechanism of invasion & metastasis* *-Tumor angiogenesis.* *-Kinetic of tumor cell growth* Tumor immunity – Tumor antigens – anti-tumor effecter mechanisms. -Tumor & immunosurveilance. Carcinogenesis.-Chemical, radiation and viral Molecular basis of cancer. The clinical effect of neoplasia.	

<u>Systemic Pathology</u>		
10	**<u>Cardiovascular system</u>**	**8**
	The Blood Vessels - Vascular wall cells and their response to injury *- Endothelial cells: Function and dysfunction* *- Vascular smooth muscle cells* *- Intimal thickening – A response to vascular intimal injury*	

	- Atherosclerosis - Hypertensive vascular disease - *Pathogenesis of hypertension* - *Mechanisms of essential hypertension* - *Vascular pathology in hypertension* - Aneurysms - *Abdominal aortic aneurysm* - *Aortic dissection* - Vasculitis - *Giant cell(Temporal) arteritis.* - *Thromboangiitis obliterance (Buerger Disease)* -Tumors - *Benign tumors* *-Hemangioma* *-Lymphangioma* - *Intermediate (Borderline) tumors* *-Kaposi sarcoma* - *Malignant tumors* *-Angiosarcoma* **The Heart** - Congestive heart failure -Ischemic heart diseases - *Angina pectoris* - *Myocardial infarction* - *Chronic ischemic heart disease* - *Sudden cardiac death* -Valvular heart diseases - *Rheumatic fever and heart disease* - *Infective Endocarditis* - Primary myocardial diseases - *Myocarditis* - Congenital heart disease - *Left-to-right shunts* *-Atrial septal defects* *-Ventricular septal defects* *-Patent ductus arteriosus* - *Right-to-left shunts*	

	-Tetralogy of Fallot *-Transposition of great arteries* - Pericardial diseases - *Pericarditis* - *Pericardial effusions* - Cardiac tumors	

11	**<u>Respiratory system</u>**	**9**
	Upper respiratory tract -Nose *-Nasal sinuses -inflammatory conditions & tumors.* *-Nasopharynx – inflammatory conditions* *-Tumors.* *-Angiofibroma* *-Nasopharyngeal carcinoma* -Larynx. *-Benign tumors,* *-Singer's nodule* *-Polyp* *-Squamous papilloma* *-Malignant tumors* *-Squamous cell carcinoma* Lower respiratory tract - Atelectasis (collapse) - Acute Lung injury - Obstructive Pulmonary Disease *-Bronchial asthma.* *-Chronic bronchitis.* *-Bronchiectasis* *-Emphysema* *-Centrilobular emphysema* *-Panacinar emphysema* *-Pathogenesis* -Restrictive defect *-Chest wall disorders*	

	-Interstitial lung diseases *-Acute respiratory distress syndrome* *-Chronic restrictive lung diseases* *-Pneumoconiosis* *-Interstitial fibrosis of unknown etiology* *-infiltrative lesions* -Pneumonia *-Bronchopneumonia* *-Lobar pneumonia* -Pulmonary hypertension. *-Causes* *-Pathological changes* -Pneumoconiosis. *-Classification* *-Pathological changes* *-Complications* -Tumors *-Bronchial carcinoid.* *-Typical* *-Atypical* *-Small cell neuroendocrine carcinoma.* *- large cell neuroendocrine carcinoma* *-Bronchial carcinoma.* *-Squamous cell carcinoma* *-Adenocarcinoma* *-Small cell carcinoma* *-Large cell carcinoma* -Pleura. *-Tumors* *-Mesothelioma* *-Benign* *-Malignant* -Secondary tumor.	

12	**The Hematopoietic system**	**7**
	Red cell Disorders - Anemia of blood loss: Hemorrhage - Hemolytic Anemia *-Hereditary spherocytosis* *-Sickle cell anemia* *- Thalassemia* *-G6PD deficiency* *-Paroxysmal nocturnal hemoglobinuria* *-Immunohemolytic anemia* *-Hemolytic anemia from mechanical trauma.* -Anemia of diminished erythopoiesis -Polycythemia White cell Disorders - Non-neoplastic disorders of white cells - Neoplastic proliferation of white cells - Leukaemias -Myeloproliferative disorders Plasma cell disorders -Multiple myeloma Bleeding disorders -Ideopathic thrombocytopenic purpura -Hemophilia -Von-Willbrand disease	
13	**Lymphoreticular system**	**4**
	Reactive lymphadenopathy - Acute non-specific lymphadenitis - Chronic non-specific lymphadenitis - Granulomatous lymphadenitis - Miscellaneous non-neoplastic diseases Neoplastic lymphadenopathy -Hodgkin's lymphoma - Non-Hodgkin's lymphoma *-Low-grade B-cell lymphoma* *-Low-grade T- cell lymphoma*	

	-*High- grade B- cell lymphoma* -*High – grade T- cell lymphoma* Metastatic lymphadenopathy Disorders of spleen -Hypersplenism -Splenomegaly Disorders of the Thymus - Thymic Hyperplasia - Thymoma	

14	**Oral cavity and the Gastrointestinal Tract**	**7**
	Oral cavity -Ulcerative and inflammatory lesions -Aphthous ulcer -Herpes virus infection -Oral candidiasis -Aids and Kaposi sarcoma Esophagus - Anatomic and motor disorders -Achalasia - Hiatal hernia - Varices - Esophagitis (causes and types) - Barrett's esophagus - Esophageal carcinoma. Stomach -Gastritis -*Acute gastritis* -*Chronic gastritis* -Gastric ulceration -*Acute gastric ulceration* - *peptic ulcers* -Gastric tumors - *Gastric polyps* - *Gastric Carcinoma* - *Etiology and pathogenesis* Small and large intestine - Inflammatory bowel disease	

	-*Crohn's disease* -*Ulcerative colitis* - Tumors of small and large intestines -*Non- neoplastic polyps* -*Adenomas* -*Familial polyposis syndromes* -*Colorectal carcinoma* -*Neoplasms of small intestine* -*Other tumors of gastro-intestinal tract , Gastro-intestinal* *lymphoma and Carcinoid* Appendix -Appendicitis -Appendicular tumors	
15	**Liver, Gall bladder and pancreas**	**7**
	Liver -Micro architecture of liver -Liver cell reaction to injury -Hepatitis -*Viral* -*Alcoholic* -Liver cirrhosis -Tumors Gall bladder -Cholelithiasis -*Pure stones* -*Mixed stone* -Acute cholecystitis -Chronic cholecystitis -Tumors Pancreas -Acute pancreatitis -Chronic pancreatitis -Tumors -*Tumors of exocrine pancreas* -*Tumors of endocrine pancreas*	

16	**Kidney and Urinary Tract System**	**8**
	Clinical manifestations of renal diseases Glomerular diseases -Pathogenesis of glomerular diseases *- Circulating Immune complexes* *- In-situ complexes* *- Cell-mediated immune glomerulonephritis* *- Mediators of immune injury* *- Other mechanisms of glomerular injury* -The nephrotic syndrome *- Minimal – change disease (lipoid nephrosis)* *- Focal and segmental glomerulosclerosis* *- Membranous nephropathy (Membranous glomerulonephritis)* *- Membranoproliferative glomerulonephritis* -The nephritic syndrome *-Acute post infections (post streptococcal)* *-Glomerulonephritis* *-lgA nephropathy (Berger disease)* *- Hereditary nephritis* *- Rapidly progressive (Crescentic)glomerulonephritis* -Chronic glomerulonephritis Diseases affecting tubules and interstitium -Tubulointerstitial nephritis -Acute pyelonephritis -Chronic pyelonephritis and reflux nephropathy -Drug induced interstitial nephritis -Acute tubular necrosis Diseases involving blood vessels -Benign nephrosclerosis -Malignant hypertension and malignant nephrosclerosis -Thrombotic microangiopathies Cystic diseases of the kidney -Simple cysts	

	-Autosomal dominant (adult) polycystic kidney diseases -Autosomal recessive (childhood) polycystic kidney diseases -Medullary cystic diseases Urinary outflow obstruction -Renal stones -Hydronephrosis Tumors -Renal cell carcinoma -Wilm's tumor -Tumors of the renal pelvis and calyces **Diseases of urinary tract** -Ureter *-Obstruction* *- Tumors* -Urinary bladder *-Acute cystitis* *-Chronic cystitis* *-Special forms of cystitis* *-Tumors* -Urethra *-Inflammation* *-Tumors*	

17	**<u>The female genital system</u>**	**5**
	Vulva - Vulvitis *-Contact dermatitis* -Non-neoplastic epithelial disorders. *-Lichen sclerosus* *-Lichen simplex* -Tumors *-Condylomas and low grade Vulvar Intraepithelial Neoplasia.*	

	-*High grade Vulvar Intraepithelial Neoplasia and carcinoma* *of vulva.* Vagina -Vaginitis -Vaginal Intra- Epithelial neoplasia and squamous cell carcinoma -Sarcoma Botryoides Cervix - Cervicitis -Tumors of the cervix -*Cervical Intraepithelial Neoplasia and squamous cell* *carcinoma.* -Endocervical polyp. Body of uterus - Endometritis - Adenomyosis - Endometriosis - Endometrial hyperplasia - Tumors of Endometrium and myometrium - *Endometrial polyp* - *Leiomyoma* -*Endometrial carcinoma* Ovaries - Non- neoplastic cysts -*Follicular and luteal cyst* -*Polycystic ovaries* -*Chocolate cyst.* - Tumor of the ovary - *Surface epithelial stromal tumors* -*Serous tumors* -*Mucinous tumors* -*Endometrioid tumors* -*Brenner tumors*	

	-Germ cell tumors *-Teratomas* *-Benign (mature) cystic teratoma* *-Immature malignant teratoma* *-Specialized teratoma* *-Dysgerminoma* *-Choriocarcinoma* *-Yolk sac tumor* *-Sex cord stromal tumors* *-Granulosa cell tumor* *-Thecoma- fibroma* *-Sertoli- Leydig cell tumors* *- Metastatic* *-Krukenberg's tumor.* Diseases of placenta (pregnancy) - Ectopic pregnancy - Gestational trophoblastic disease *-Hydatidiform mole, complete and partial* *-Invasive Mole* *-Choriocarcinoma*	
18	<u>Breast</u>	**3**
	Normal breast Benign breast lesions: Infections -Acute pyogenic infections -Tuberculosis Non infective inflammatory lesions - Mammary ductectasia - Granulomatous mastitis - Traumatic fat necrosis - Reaction to foreign body - Galactocele Fibrocystic disease of the breast	

	Benign tumors of the breast: -Fibroadenoma -Adenoma -Papilloma Breast carcinoma -Risk factors -Classification *-In situ carcinoma : ductal, lobular* *-Invasive carcinoma* *-Ductal carcinoma(classical & subtypes)* *-Tubular carcinoma* *-Prognosis of breast carcinoma* Miscellaneous tumors of the breast : Phyllodes tumor, lymphoma Tumors of male breast	

19	**Male genital System**	**3**
	Testicular neoplasms -Germ cell tumor *Seminoma - Variants* *- Non seminomatous* *-Teratomas* *-Embryonal carcinoma* *-Yolk sac tumor* *-Choriocarcinoma* *- Mixed germ cell tumor* - Sex cord stromal tumor *- Sertoli-Leydig cell tumor* -Mixed testicular tumor - Testicular lymphoma Prostate -Prostatic Hyperplasia -Prostatic carcinoma	

20	**Bones, Joints, and skeletal muscles**	**4**
	Diseases of bone -Infections of bone *-Pyogenic osteomyelitis*	

	-Tuberculous osteomyelitis - Vitamin D deficiency rickets and osteomalacia - Paget's disease of bone - Bone tumors *-Bone forming tumors: osteoma, osteoid osteoma, osteogenicsarcom* *- Cartilage forming tumors:* *-Osteochondroma* *-Chondroblastoma* *-Miscellaneous tumors* *-Ewing sarcoma* *-Giant cell tumor* *-Metastatic tumors of bone*	

21	**The Endocrine System**	**4**
	Pituitary -Hyperpitutarism and Pituitary Adenomas -Prolactinomas -Growth Hormone – producing Adenomas -Corticotroph Cell Adenomas -Other Anterior Pituitary Neoplasms -Hypopituitarism -Posterior Pituitary Syndromes Thyroid -Hyperthyroidism -Hypothyroidism -Thyroiditis -Chronic lymphocytic (Hashimoto) thyroiditis -Sub acute granulomatous (de Quervain) -Sub acute lymphocytic thyroiditis -Other forms of thyroiditis -Graves diseases	

	-Diffuse and multinodular goiter -Neoplasms of the Thyroid *-Adenomas* *-Carcinomas* *-Papillary Carcinoma* *-Follicular Carcinoma* *-Medullary Carcinoma* *-Anaplastic Carcinoma* Parathyroid Glands -Hyperparathyroidism -Primary Hyperparathyroidism -Secondary Hyperparathyroidism -Hyperparathyroidism Adrenal Cortex -Adrenocortical hyperfunction (hyperaderenalism) -Hypercortisolism (Cushing syndrome) -Hyperaldosteronism -Adernogenital syndromes -Adrenal insufficiency -Acute adrenocortical insufficiency -Chronic adrenocortical insufficiency (Addison disease) -Adrenocortical neoplasms Adrenal Medulla -Pheochomocytoma	

22	**<u>The central and peripheral nervous system</u>**	**4**
	Cells of the nervous system -Neurons -Astrocytes -Oligodendrocytes -Ependymal cells -Microglia Edema and hydrocephalus	

	-Cerebral edema -Hydrocephalus Vascular diseases -Global hypoxic-ischemic encephalopathy -Infarcts -Intracranial hemorrhage *-Primary brain parenchymal hemorrhage* *-Saccular aneurysm and subarachnoidal hemorrhage* Central nervous system trauma -Epidural hematoma -Subdural hematoma Infections of the nervous system -Leptomeningitis *-Acute purulent leptomeningitis* *-Acute lymphocytic (viral)meningitis* *-Chronic meningitis* -Parenchymal infections (encephalitis) *-Brain abscess* *-Viral encephalitis* Neoplasms of the central nervous system -Primary neuroglial tumors(Gliomas) *-Astrocytomas* *-Oligodendrogliomas* *-Ependymomas* -Primitive neuroepithelial neoplasms -Meningiomas -Metastatic neoplasms	

MICROBIOLOGY SYLLABUS FOR 3 RD YEAR

M.B.CH.B.STUDENTS

DEPARTMENT OF MICROBIOLOGY – COLLEGE OF MEDICINE – UNIVERSITY OF BASRAH

(80 hours with discussions)

Topic	Hrs	Lecturer
Part I. GENERAL BACTERIOLOGY	***11 hrs***	
Classification of bacteria	**1**	*Dr. Sundis S. Bakr*
Structure of bacterial cell	**1**	*Dr. Sundis S. Bakr*
Growth , survival and death of bacteria	**1**	*Dr. Hanadi A. Jassim*
Cultivation of bacteria	**1**	*Dr. Ihsan E. Alsaimary*
bacterial metabolism : elements , cycles , regulation & applications	**2**	*Dr. Ihsan E. Alsaimary*
Bacterial genetics: Concepts, replication , mutation,regulation, genetic recombination & applications	**2**	*Dr. Ihsan E. Alsaimary*
Sterilization & disinfectants	**1**	*Dr. Sundis S. Bakr*
Pathogenesis of bacterial infections	**1**	*Dr. Sundis S. Bakr*
Antimicrobial chemotherapy	**1**	*Dr. Hanadi A. Jassim*
Part II. SYSTEMATIC MEDICAL BACTERIOLOGY	***26hrs***	
Gram positive cocci*:* *Staphylococcus , Streptococcus & Enterococcus*	**3**	*Dr. Ihsan E. Alsaimary*
Spore forming Gram positive bacilli (aerobic & anaerobic):*Bacillus & Clostridium*	**3**	*Dr. Hanadi A. Jassim*
***Propionibacterium , Listeria* Non spore forming Gr+ve bacilli*:* *Corynebacterium*& related sp.**	**2**	*Dr. Hanadi A. Jassim*
Mycobacterium	**2**	*Dr. Sundis S. Bakr*
Enteric Gr-ve rodes*:* Enterobacteriaceae *E.coli , Klebsiella , Proteus , Pseudomonas, Acinetobacter, Shigella , Salmonella & others*	**4**	*Dr. Sundis S. Bakr*
Yersinia , Francisella & Pasteurella	**1**	*Dr. Sundis S. Bakr*
Vibrio , Aeromonas ,Plesiomonas & others	**1**	*Dr. Ihsan E. Alsaimary*
***Campylobacter , Helicobacter &* associated bacteria**	**1**	*Dr. Ihsan E. Alsaimary*
Haemophilus , Bordetella and Brucella	**1**	*Dr. Hanadi A. Jassim*
***Legionella* & unusual bacterial pathogens**	**1**	*Dr. Hanadi A. Jassim*
***Mycoplasma* & cell wall defective bacteria**	**2**	*Dr. Ihsan E. Alsaimary*
Rickettsial diseases	**2**	*Dr. Ihsan E. Alsaimary*
STD pathogens: *Neisseria , Chlamydia* Spirochaetes & other spiral bacteria	**3**	*Dr. Sundis S. Bakr*
Part III . GENERAL VIROLOGY	**3 hrs**	

General properties & Classification of viruses **cultivation** **Replication of viruses** **Natural history & mode of transmission** **Pathogenesis & control of viral diseases** **Prevention & treatment of viral diseases**	**3**	*Dr. Hassan J.Hasony*
Part IV .SYSTEMIC MEDICAL VIROLOGY	**11 hrs**	
parvovirus	**1**	*Dr. Hassan J.Hasony*
adenovirus & poxvirus	**1**	
Herpes viruses : **HSV-1 , HSV-2 , V2V , CMV , EBV**	**1**	
Orthomyxoviruses	**1**	
Paramyxovirus & Rubella viruses	**1**	
picornaviruses	**1**	
Viral hepatitis	**1**	
Viral gastroenteritis	**1**	
arbovirus	**1**	
Oncogenic viruses	**1**	
Retroviruses & HIV infection	**1**	
Part V. BASIC & CLINICAL IMMUNOLOGY	**14 hrs**	
Basis of body defenses: specific & non specific	**1**	*Dr. Thuraya Jaafer*
immune responses	**1**	
Immunoglobulins	**1**	
Antigen-antibody reactions	**1**	
The complement system	**1**	
Cell mediated immunity	**2**	
MHC: structure & diseases	**1**	
Hypersensitivity reactions	**1**	
Immunologic tolerance	**1**	
Transplantation immunology	**1**	
Autoimmunity & autoimmune diseases	**1**	
Immunodeficiency diseases	**1**	
Tumor immunity	**1**	
Part VI. MEDICAL MYCOLOGY	**3 hrs**	
Structure,classification, superficial mycosis , subcutaneous mycosis, systemic mycosis and opportunistic fungi	**3**	*Dr. Hassan J.Hasony*

Dr. Hassan J.Hasony : 17 hrs
Dr. Sundis S. Bakr : 14hrs
Dr. Ihsan E. Alsaimary : 14 hrs
Dr. Thuraya Jaafer : 14 hrs
Dr. Hanadi A. Jassim : 9 hrs

SCHEDULE LABORATORY CLASS OF BACTERIOLOGY

Lab. No	
1. Orientation to microbiology laboratory.	
a. Safty procedure and precaution.	
b. General laboratory directions	
c. The microscope.	
2- Mixed Culture and preparation	
a. Simple stain.	
b. Gram's stain method.	
3- Culture Media	
a. Preparation of nutrient agar plate.	
b. Culturing microorganisms from the environment.	
4- Examination of the culture of the previous laboratory from different colonies Sterilization and Disinfection	
5- Pure Culture Technique	
6- Study colonial morphology	
Sub-culture technique	
7- Study of some metabolic and enzyme activities of bacteria.	
8- ***IMMUNOLOGY:***	
a. Precipitation (ring test, Single and double immunodifution, immunoelectrophoresis)	
b. Agglutination: (slide agglutination, test tube agglutination)	
c. Complement fixation.	
d. E-Rosette, EA-Rosette, Prick test, Mononuclear cell isolation.	
Systemic Bacteriology	
10- ***Staphylococci:***	
a. Inoculate and streak blood agar plate and mannitol salt agar with the culture provided.	
b. Make Gram stain of the organism.	
11- ***Streptococci:***	
a. Describe the appearance of staphylococci on Blood agar and manitol salt agar plates.	
b. Perform a slide coagulase test on each of the staphylococcus agar plate.	
c. Inoculate and streak blood agar plate with the culture provided.	
d. Make Gram' stain of the organism.	
12- ***PNEUMOCOCCI***:	
a. Describe the appearance of streptococci on Blood agar.	
b. Subculture streptococci in tube of brain heart infusion broth.	
c. Inoculate and streak blood agar plate with the culture provided.	
d. Make Gram' stain of the organism.	
13- ***NEISSERIAE:***	
a. Prepare Gram stained slide from the Brain-heart infusion broth. Describe the microscopic morphology of streptococci in liquid medium.	
b. Describe the appearance of Pneumococci on Blood agar.	
c. Subculture Pneumococci in brain-heart infusion broth and incubate at 37'c	
d. Inoculate and streak blood agar plate with ***N. Catarralis***.	
e. Make Gram' stain of ***N. Catarralis***.	
f. Stain the prepared slide provided with Gram method	
14- ***CORYNEBACTERIA***:	
a. Stain the prepared slide provided with Neisser's stain.	
b. Perform the bile solubility test for ***pneumococcus.***	
c. Perform the oxides test of ***N. Catarrhalis.***	
15- MYCOBACTERIA Stain the slide of sputum with Zeil-Nelsen stain.	
16- Genus ***BACILLUS****:*	
a. Inoculate and streak blood agar plate with Bacillus subills.	
b. Make Gram' stain slide of the organism.	

c. Prepare heat fixed smear of the culture and stain it with spore stain.	
17- ***GENUS CLOSTRIDIA:***	
a. Describe the appearance of ***B. Subtilis*** on blood agar.	
b. Demonstration on ***clostridia.***	
c. Film on Gas Gangrene	
ENTERIC BACILLI:	
18- ***Echerichia coli*** and ***klebsiella aerogenes.***	
A. Inoculate and streak macconkey agar plate with the culture provided.	
b. Make Gram' stain of the organism.	
19- ***Proteus*** and ***Pseudomonas***	
a. Describe the appearance of ***E. coli*** and ***K. aerogenes*** on Macconkey agar plate.	
b. Subculture the organism on the following media:	
- Peptone water.	
- Glucose broth (two tubes).	
- Slant of Simmon Citrate agar.	
c. Inoculate and streak Macconkey agar plate with the culture provided (***Proteus*** and ***Pseudomonas)***.	
d. Make Gram' stain of the organism.	
20- ***VIBRIOS***	
A. Demonstration on Non-aggulatinable vibrios (NAG strain).	
b. Describe the appearance of ***Pseudomonas o***n Macconkey agar plate.	
c. Perform the oxidase test on ***pseudomonas*** culture;	
d. Examine the glucose broth incubated with ***proteus.***	
e. Examine the urea broth incubated with ***proteus.***	
21- ***SPIROCHETES, HEMOOPHILIUSAND BORDETELIA***:	
a. Slide demonstration on Trepanema palladium, hemophillis ducrevil and ***Borrelia vincenti***.	
b. Examine pseudomonas agar slant for pigment production.	
c. Examine the glucose sugar broth (fermentation).	
VIROLOGY	
22- First lab.	
a. Isolation of the viruses:	
- Tissue culture	
- Embryonated agg.	
- Animal inoculation.	
b. Histological examination.	
c. Transformation.	
d. Slide projection	
23- Second lab:	
a. Serological tests for identification of viruses:	
- Viral neutralization.	
- Haemagglutination & haemagglutination inhibition	
- Plague and plague reduction.	
- Gel diffusion.	
- ELISA	
- Complement fixation test.	
- Slide Projection.	
MYCOLOGY	
24- First lab	
a. Contaminants.	
b. Dematophytes.	
c. ***Candida*** species (yeast-like fungi).	
25- Second lab: (systemic fungi)	
a. ***Cryptococcus.***	
b. ***Histoplasma capsulatum***.	
c. ***Sporotrichum schenkii***.	
26- Final Examination.	

University of Basrah
College of Medicine
Department of Microbiology
Parasitology section

Syllabus OF Parasitology

Lectures

For 3 rd Year M .B. CH . B. Student

Topics	Hrs
GENERAL INTRODUCTION	**2**
Medical Protozology	
1-Amebae of man	**3**
Entamoeba histolytica and amoebiasis	
Entamoeba coli	
Entamoeba gingivalis	
Entamoeba hartmanni	
Endolimax nana	
Iodamoeba butschlii	
Trichomonas tenax	
BIastocystis *hominis*	
2-Flagellates	
A- Intestinal , oral and urogenatal flagellates	**2**
Giardia Iamblia	
Dientamoeba fragilis	
Trichomonas tenax	
Trichomonas vaginalis	
Chilomastix mesnili and othre intestinal flagellates	

B- Blood and tissue flagellates : **4**

***Leishmania tropica* complex**
***L. major* complex**
***Leishmania donovani* complex**
***Leishmania braziliensis* complex**
***L. mexicana* complex**
Trypanosoma rhodesiense
T. gambiense
T. cruzi

3-Ciliate :

Balantidium coli

4- SPOROZOA **4**

a- Malarial Parasites:
plasmodium vivax
plasmodium malariae
plasmodium falciparum
plasmodium ovale

b- ***Toxoplasma , Pneumocystis, Emeria,*** ***2***
Isospora , Sarcocystis and Cryptosporidium

Medical helminthology

i -Trichinella spiralis

j –The filariae:

1- ***Wuchereria bancrofti***
2- Brugia malayia
3-Mansonella perstans
4- Mansonella ozzardi
5- Onchocerca volvulus
6- Loa loa
7- Drancuncolus medinensis

Note

The following points will be discussed for each parasites mentioned above .

1- geographical distribution .
2- Morphology ,biology and life cycle .
3- Pathogenesis and symptomatology .
4- Treatment .
5- Epidemiology .
6- Control.
7- Diagnosis.

Parasitology Practical

Medical Protozoology

1st week : Amoebae of man

1- ***Entamoeba histolytica*** vegetative or trophozoite stage

2- ***Entamoeba histolytica*** cyst stage

2nd week : Revision of the first practical and

1- ***E. coli*** trophozoite stage

2- ***E. coli*** cyst stage

3- ***Endolimax nana*** cyst stage

4- ***Iodamoeba butschlii*** cyst stage

5- ***Blastocystis hominis*** trophozoite stage

3rd week :

1- ***Giardia lamblia*** trophozoite and cyst stages

2- ***Chilomastix mesnili*** cyst stage

3- ***Trichomonas hominis*** trophozoite stage

4- ***T. vaginalis*** trophozoite stage

4th week : Revision of the amoebae , intestinal and urogenital flagellates

5th week :

1- Leishman bodies (amastigote stage)

2- Leptomonad form (promastigote stage)

3- Crithidial form (epimastigote stage)

4- ***Trypanosoma gambiense***

5- ***T. cruzi***

6- Ciliata ***: Balantidium coli*** trophozoite and cyst stage

6th week : Sporozoa (malarial parasites)

1- Exoerythrocytic srage of ***Plasmodium***

2- ***P. vivax*** (ring stage , trophozoite , schizont , gametocyte)

7th week :

1- ***P. ovale*** (trophozoite , schizont)

2- ***P. malariae*** (schizont , gametocyte)

3- ***P. falciparum*** (ring , gametocyte)

8th week :

1- ***Toxoplasma gondii*** trophozoite

2- ***Cryptosporidium*** oocyst

2- ***Pneumocystis carini*** cyst

3- ***Sarcocystis*** sarcocyst

Medical Helminthology

9th week : Cestoda

1- ***Taenia saginata*** (scolex , gravid segment , larval stage ***Cysticercus bovis***)

2- ***Taenia solium*** (gravid segment , larval stage ***Cysticercus cellulosae***)
3- Mature segment of ***Taenia***
4- Egg of ***Taeniidae***

10 th week : 1- ***Hymenolepis nana*** full parasite , egg , cysticercoids
2- ***Hymenolepis diminuta*** full parasite , egg
3- ***Dipylidium caninum*** full parasite , egg capsule
4- ***Diphyllobotherium latum*** full parasite , egg

11th week : Hydatid cyst

1- ***Echinococcus granulosus*** mature adult
2- Egg of ***Taeniidae***
3- Hydatid sand
4- T.S. of hydatid cyst in liver

:

12 th week : Trematoda

Liver flukes :

1- ***Fasciola gigantica*** mature parasite
2- ***Fasciola hepatica*** mature parasite , egg , miracidium , redia , cercaria
3- ***Lymnaea cailliaudi*** (snail intermediate host of F. gigantic)

13 th week :

Blood flukes

1- ***Schistosoma haematobium*** male , female , egg
2- ***Schistosoma mansoni*** male , female , egg

14 th week :

1- ***S. japonicum*** egg
2- Egg , miracidium and cercaria of ***Schistosoma***
3- ***Bulinus trancatus*** snail intermediate host of ***S. haematobium***
4- ***Biomphlaria Alexandria*** snail intermediate host of ***S. mansoni***

15th and 16th week :mid- year practical examination

17 th week : Nematoda

1- ***Ascaris lumbricoides*** (fertilized corticated egg , fertilized decorticated egg , non fertilized egg)
2- ***Trichuris trichura*** male , female , egg

18 th week :

1- ***Entrobius vermicularis*** male , female , egg
2- T. S. of appendix infected with ***E. vermicularis***
3- N.I.H swab method
4- Scotch tape method

19 th week :

1- ***Strongyloides stercoralis*** free living female , free living male , rhabditiform larva , filariform larva

1- ***Trichinella spiralis*** male , female , encysted larva in the muscle of pig

20 th week :

1- ***Ancylostoma duodenale*** buccal capsule , female
2- ***Necator americanus*** buccal capsule
3- Egg of hook worm
4- Filariform larva of hook worm
5- Egg of ***Trichostronglus colubriformis***
6- Copulatory bursa of ***Ancylstoma***

21 th week : Filaria

1- Microfilaria of ***W. bancrofti*** in blood film
2-Microfilaria of ***Loa loa*** in blood film
3- T . S. of Onchocerca nodule showing ***O. volvulus***

22 th week :

1- ***Phlebotomus papatasii*** (sand fly)
2- ***Pediculus humanus*** male , female
3- ***Pthirus pubis*** male , female
4- Egg of ***Pediculus humanus***

23 th week :

Anopheles mouth parts (male)
mouth parts (female)
larva
egg

Culex mouth parts (male)
mouth parts (female)
larva and egg

2- Pupa of mosquito

24 th week :

- ***Sarcoptes scabiei*** male , female
- Hard tick male , female , larva
- Cyclops
- Soft tick adult

4- Larva of soft tick

Department of Medicine

Theory Lecture Syllabus

- **Introductory lectures**
  14 L

- **Nutritional disorders**
  13 L

- **Water , Electrolytes and acid base**
  6 L
  Balance

- **Endemic and helminthic diseases**
  11 L

اسم الكتاب المنهجي

Davidson`s principles and practice of medicine

Introduction to Medicine :

Topics	Hours	
1- Introduction to clinical medicine	**1**	د. مازن صالح
2- Fever , pathogensis, types causes	**2**	د. مازن صالح
3- Chest pain	**2**	د. حمدى صالح عبد القادر
4- Bachache	**1**	د. لمى احمد عبد الله
5- Cough, shortness of breath, cyanosis	**1**	د. لمى احمد عبد الله
6- Oedema and ascites	**2**	د. لمى احمد عبد الله
7- Jaundice	**1**	د. لمى احمد عبد الله
8- Headache	**1**	د. لمى احمد عبد الله
9- Hematuria, frequency, dysuria	**1**	د. لمى احمد عبد الله
10-Abdominal pain, nausea vomiting ,diarrh	**1**	د. لمى احمد عبد الله
11- Pulse	**1**	د. لمى احمد عبد الله

Nutritional disorders :

1- Malnutrition	**2**	**د. احمد عبيد شرهان**
2- Medical diets , obesity	**3**	**د. احمد عبيد شرهان**

3- Vitamins : **د. زينب عبد الرضا اكبر**

Vit. A. Deficiency and hypervitaminosis	**1**
Vit. D. Rickets osteoporosis, ostemalacia	**2**
Vit. K.E.C.	**1**
Vit. B- complex , Folic acid	**2**
4- Mineral deficiency	**2**

Disturbances in water , electrolyte and H concentration :

1- Total body water, physiological considerations	**1**	**د. حيدر صالح عبود**
2- Primary water depletion , water intoxication	**1**	**د. حيدر صالح عبود**
3- Sodium depletion , sodium and water accumulation	**1**	**د. حيدر صالح عبود**
4- Potassium depletion and excess	**1**	**د. طالب كاظم عكار**
Magnesium depletion and excess		

5- Disturbances in H ion concentration: Metabolic acidosis and alkalosis	**1**	**د. طالب كاظم عكار**
6- Respiratory acidosis and alkalosis	**1**	**د. طالب كاظم عكار**

Endemic and helminthic diseases : **د. هبه عبد الاله علي**

1- Malaria	**2**
2- Amebiasis - Giardiasis	**1**
3- Toxoplasmosis + hydatid diseases	**1**
4- Schistosomiasis	**2**
5- Ankylostomiasis , Ascariasis, Oxyuriasis , Taeniasis , Trichuriasis	**1**
6- Trichinosis, strongyloidiasis	**1**
7- Cholera	**1**
8- Sandfly , Dengue , Flaque	**1**
9- Leprosy	**1**

College of Medicine
Department of Surgery
Third year-General surgery

No.	Topic	L	التدريسي
1	Wound healing & repair	1	د . قيس كاظم
2	Metabolic responce to trauma	1	د . نوفل علي مبارك
3	Surgical infections (specific & non specific)	2	د . رافد عبد الجبار
4	Sterilization, disinfection & hospital infections	1	د . رافد عبد الجبار
5	Fluids, electrolytes & acid base balance	3	د . هيثم حسين علي
6	Surgical Nutrition	2	د . صادق حسن كاظم
7	Shock	1	د . إبراهيم فالح
8	Accident & life support	1	د . إبراهيم فالح
9	Haemorrhage	1	د. قيس كاظم
10	Blood transfusion & complications	1	د. قيس كاظم
11	Fistula, sinuses and ulcer	1	د . عباس عبد الزهرة
12	Burn	2	د . علاء حسين
13	Parasites of surgical importance	1	د . عباس عبد الزهرة
14	Principle of skin Repair	1	د . عامر سلمان
15	Ischaemia	1	د . مؤيد محمد المظفر
16	Gangrene	1	د . مؤيد محمد المظفر
17	Ulcers of the Leg &Foot unilateral limb edema	1	د . مؤيد محمد المظفر
18	Venous disorders of the limbs	1	د . مؤيد محمد المظفر
19	Lymphatic disorders .	1	د . مؤيد محمد المظفر

University of Basrah
College of Medicine
Department of Community Medicine

Curricula and Syllabi for Course of Community Medicine

Scientific courses for undergraduate students

3.1. Broad objectives for undergraduate community medicine

The curriculum topics are designed to help trainees:

1. To acquire basic knowledge on main components of community medicine interests.
2. To develop relevant competencies and skills in epidemiology and statistics so as to be able to measure and evaluate health and health care services.
3. To develop abilities and competencies in the epidemiology and control of major health problems at population level.
4. To develop basic principles of scientific research.
5. To develop understanding of primary health care as strategy and services to the population.
6. To contribute to the requirements of graduation of competent doctors to serve national, regional as well as local goals.
7. To be prepared for postgraduate training in the future.
8. To be prepared to pursue self learning towards continuing professional development.

3.2. Third year medical students

3.2.1. Objectives

The course is designed to enable the student to:

1. Define statistics and list the main uses of statistics in medicine.
2. List methods of data presentation and demonstrate the ability to present raw data in meaningful form.
3. State the purpose of a frequency distribution and cumulative frequency distribution in describing a set of biological measurements.
4. Distinguish between normal frequency distribution and skewed distribution.
5. Define the mean, mode, median and standard deviation and standard error and compute each of them from grouped and ungrouped data.
6. Use the standard error to compute 95% confidence limit for a mean or a proportion.
7. Distinguish between the standard deviation and the standard error and give examples of the use of each.
9. Select and compute necessary calculations to explore the statistical significance of a comparative qualitative and quantitative set of data.
10. Interpret statements of statistical significance with regard to comparisons of means and frequencies and explain what is meant by statements such as "P<0.05).
11. Explain the main pathways of metabolism of major diet components.
12. define the requirements of major human nutrients.
13. Explain the nutrient requirements of special groups (e.g., pregnant woman).
14. Explain the interaction of infection and nutritional status of an individual.
15. List the main approaches to assess nutritional status of population.
16. List and define major nutritional diseases.

3.2.2. Syllabus

The course consists of 30 theoretical hours and 30 practical hours. The details are shown in Table 1 below:

Table 1: detailed topics of community medicine to third year medical students

Term and main subject	Topics	Hrs
First Term: Medical Statistics	Introduction to medical statistics	1
	Summarization and presentation of data	2
	Measurement of central location	1
	Measurement of variability	1
	Introduction to sampling	2
	The normal distribution and its characteristics	1
	The confidence interval and limit	1
	Tests of significance: ►the Z test ►the t test ►the X^2 test	3
	The concept of community diagnosis as an application of statistics in measuring population health	3
Sub-total		15
Second Term: Public health nutrition		
	Definition of relevant terms	1
	Nutrient metabolism and requirements	3
	Nutrition and infection	1
	Nutrition of specific groups of population	2
	Nutritional surveys and assessment of nutritional status of population	2
	Selected Nutritional diseases	3
	Diet therapy and nutritional rehabilitation	3
Sub-total		15
Grand-total		**30**

Practical: This consists of class-based desk exercise sessions, two hours each. The classes are run as one session per week for the 15 weeks during the first term. Students are divided into groups of 15-25 students each> Each group is assigned a tutor from the department faculty. Recently the tutors are rotating on groups to interchange expertise and experience and to reduce interpersonal variation in assessing the students. No practical classes are organized during the second term but a demonstration exercise may be arranged.

3.2.3. Student assessment

The minimum requirement of a student to be transferred to fourth year is to achieve at least 50% of the total 100 marks assigned for the course. The marks are distributed as follows:

a. First term 10 marks based on daily continuous assessment using approved check list plus written short examinations (quizzes)
b. Mid year written examination: 20 marks
c. Second term 10 marks based on one written examination near the end of the term.
d. Final examinations 60 marks. The final examination consists of two parts; a comprehensive written examination using variety of questions (MCQ, matching, short answer questions, problems requiring mathematical calculations..etc)

Students who fail to attain the 50% cut-off mark are required to re-sit in September for a comprehensive examinations similar to the final one (written and oral). Failing in the re-sit examination entails the student to repeat the academic year.

3.2.4. Books

1. Medical statistics by Bradford Hill
2. Medical statistics by Daniel
3. Students are encouraged to use library and internet to further acquire knowledge from available resources.