



## وصف المقرر الدراسي

### المرحلة الثانية

#### الانسجة/ النظري

Week	Subject
١	Cell structure & types
٢-٣	Epithelial tissue
٤-٥	Connective tissue
٦	Cartilage
٧	Bone & ossification
٨	Blood and haemopoietic tissue (bone marrow)
٩	Muscular tissue
١٠	Nervous tissue
١١	Nervous system
١٢-١٣	Circulatory system
١٤-١٥	Lymphoid system
١٦	Skin
١٧-١٨	Respiratory system
١٩-٢٠-٢١- ٢٢	Digestive system
٢٣	Urinary system
٢٤-٢٥	Endocrine system
٢٦-٢٧	Male reproductive system
٢٨-٢٩	Female reproductive system
٣٠	Sense organ

#### مفردات المنهج العملي

Week	Subject
١	Microscope : study the microscope parts of types and lines , how can be used

٢	Preparation of slides , methods and materials used
٣-٤	Epithelial tissue
٥-٦	Connective tissue
٧	Cartilage
٨	Bone, bone marrow
٩	Blood
١٠	Muscular tissue
١١	Nervous tissue
١٢	Nervous system
١٣	Circulatory system
١٤-١٥	Lymphoid system
١٦	Skin
١٧-١٨	Respiratory system
١٩-٢٠-٢١- ٢٢	Digestive system
٢٣	Urinary system
٢٤-٢٥	Endocrine system
٢٦-٢٧	Male reproductive system
٢٨-٢٩	Female reproductive system
٣٠	sense organ

## طفيليات طبية

### المفردات النظرية/طفيليات طبية

	المفردات النظرية/ الطفيليات الطبية
Week	تفاصيل المفردات
١	Terms and definitions in parasitology.  Parasite ,host, symbiosis, ectoparasite, endoparasite ,accidental parasite, obligate parasite, facultative parasite ,host parasite relationship, scientific nomenclature, type of life cycles, type of hosts , mechanism of antiparasitic drugs.
٢	Introduction to protozoology.  Organell of locomotion, mode of living, reproduction, classification

	of protozoa.
३	<p>Sacodina, Entamoeba histolytica.</p> <p>Biology , medical importance and clinical feature of amoebiasis:</p> <p>१-Intestinal amoebiasis.</p> <p>२-Extra intestinal amoebiasis.</p> <p>Lab. Diagnosis: १.Direct method (G.S.E.).</p> <p>२.Indirect method (Serological tests).</p>
४	<p>Entamoeba coli</p> <p>Differntiation between E. histolytica &amp; E.coli</p> <p>E. gingivalis.</p> <p>Biology, medical importance, Lab. Diagnosis.</p>
०	<p>३Small amoeba:</p> <p>Endolimax nana</p> <p>Iodamoeba butschlii.</p> <p>Biology of the stages,Lab. Diagnosis.</p>
५	<p>Mastigophora, general characters.</p> <p>Intestinal flagellates.</p> <p>Giardia lamblia.</p> <p>Chilomastix mesnali, Dieantamoeba fragilis.</p> <p>Biology &amp; stages.</p> <p>Diagnostic characters of all stages.</p>

٧	<p>Genus Trichomonas.</p> <p>T. vaginalis/ urogenital flagellate.</p> <p>T. hominis</p> <p>T. tenax</p> <p>Biology , medical importance and Lab. Diagnosis of each species.</p>
٨	<p>Heamo- flagellates( blood &amp; tissue flagellates),general characters.</p> <p>Developmental stages in the vertebrate &amp; invertebrate hosts.</p> <p>Genus leishmania ,species of leishmania, biology, vector, medical importance of eachspecies, types of leishmaiasis , life cycle ,Lab. Diagnosis, including immunological tests.</p>
٩	<p>Genus Trypanosoma, species of trypanosome, biology , vector, medical importance of each species, forms of parasite, life cycle,Lab. Diagnosis.</p>
١٠	<p>Ciliophora: Blantidium coli ,Biology , medical importance, Lab. Diagnosis.</p> <p>Apicomplex: General charcter.</p> <p>Genus Toxoplasma.,T.gondii ,Biology, medical Importance,acquired and congenital toxoplasosis. Life cycle, role of domesticate animals in the transmission of the disease. Lab. Diagnosis.</p>
١١	<p>Genus plasmodium.</p> <p>Introduction to malarial parasites, malarial paroxysm, general life cycle of the plasmodium , species of plasmodium.</p>
١٢	<p>P.falciparum, P. vivax, P ovale, P. malarae</p> <p>Disease, pathology, medical importance, distribution, main differences during life cycle.</p>

١٣	<p>General discussion on malarial parasites, epidemiology, methods of diagnosis. Time to take clinical samples.</p> <p>Blood films.</p>
١٤	<p>Isopora, pathology, medical importance, Lab. Diagnosis.</p> <p>Sarcocystis species: pathology, medical importance, Lab diagnosis.</p>
١٥	<p>Cryptosporidiadse</p> <p>Genus cryptosporidium, species belong the genus, biology, pathology, epidemiology, Lab. diagnosis.</p>
١٧	<p>Platyhelminth: General characters.</p> <p>Class cestoda: General characters.</p> <p>Teania saginata:</p> <p>Teania solium: Morphology &amp; the adult worm and the larval stages of each species, biology, life cycle of each species, pathogenicity of each species, Lab. Diagnosis</p>
١٨	<p>Hymenolepis nana, Hymenolepis diminuta.</p> <p>Dipylidium caninum, Diphylobathrium latum, Biology, morphology, pathogenicity of each species, Lab. Diagnosis.</p>
١٩	<p>Echinococcus granulosus.</p> <p>Echinococcus multilocularis.</p> <p>Biology, life cycle, pathogenicity, medical importance of hydatid cyst disease, Lab. Diagnosis.</p>
٢٠	<p>Class Trematoda: General characters.</p> <p>Genus Schistosoma.</p> <p>Species of human schistosoma, life cycle.</p>

	<p>Schistosoma hematobium.</p> <p>Schistosoma mansoni.</p> <p>Biology of adult worm, habitat, pathgenicity, Lab.diagnosis</p>
٢١	<p>Fasciula hepatica</p> <p>Biology , life cycle, pathogenicity, Lab diagnosis.</p> <p>Nemathelminthis.</p> <p>Clss Nemtoda, general characters.</p>
٢٢	<p>Ascaris lambricoides</p> <p>Enterobius vermicularis.</p> <p>Biology of adult worm,lifecycle, pathgenicity and medical importanceof each species, Lab. Diagnosis of each species.</p>
٢٣	<p>Trichuris trichura.</p> <p>Trichenala spiralis.</p> <p>Biology , life cycle , pathogenicity, medical importanceof each species, Lab. Diagnosis of each species.</p>
٢٤	<p>Strogyloides stercoralis.</p> <p>Biology, life cycle, pathgenicity, medical importance, Lab. Diagnosis.</p>
٢٥	<p>Ancylostoma duadenale ,Necator Americans ( Hooks worm)</p> <p>Biology, life cycle, pathogenicity, medical importance of each species, Lab. Diagnosis.</p>
٢٦	<p>The filariae: Biology, pathgenicity and medical importanceof each species, Lab. Diagnosis of each species.Visceral larvae migrance, Cutaneaus larvae migrance.</p>

<b>Entomology</b>	
٢٧	Sand fly, Black fly
٢٨	Mosquitoes
٢٩	Ticks & Mites
٣٠	Fleas

### الطفيليات الطبية

#### المفردات العملية/ الطفيليات الطبية

١	Introduction : what parasitology Lab. Deal with enstruments & solution used in Lab.
٢	Collection of samples & preservation
٣	Preparation of the solutions ( iodine , n.s. , formalin)
٤	Writing the reports for G.S.E.
٥	G.S.E. for non parasitic finding.
٦	Slide demonstration for E. histolytic ( troph & cyst)
٧	Slide demonstration for non pathogenic amoeba
٨	Slide demonstration for Isospora
٩	G. lamblia & Chilomestic mesinili (slides)
١٠	Trichomonus species & Blantidium

١١	Fresh preparation of stool sample for different parasites cysts.
١٢	Plasmodium spp. ( P.falciparum & blood film preparation )
١٣	P. vivax & practicing blood film preparation.
١٤	Trypanosoma spp.
١٥	Lischmania spp. ( L. tropica ( cutaneous L.) , L. donovani )
١٦	Toxoplasmosis
١٧	Cryptosporidium & Sarcocystosis.
١٨	Mid term exam.
١٩	Introduction to helmenths & platyhelmenths
٢٠	Slide demonstration to genus Taenia
٢١	E. granulosus & E. multilocularis.
٢٢	V. nana & H. Diminuta
٢٣	D. caninum & D. Latum
٢٤	Slide demonstration for schistosoma spp.
٢٥	٢ <sup>nd</sup> term exam.
٢٦	Introduction to nematodes ( Anchylstoma )
٢٧	E. vermicularis
٢٨	Ascaris lumbricoidis & strongloid
٢٩	Toxocara canis , T cati
٣٠	Conc. Method & fresh sample for conc. method.



المفردات النظرية/ كيمياء حيائيه سريره

Week	تفاصيل المفردات
١	<p>INTRODUCTION TO METABOLISM</p> <p>- Food energy</p>
٢&٣	<p>enzymes and Isoenzymes</p> <p>Regulation of enzyme activity by covalent modification</p> <p>Michael's - Menten theory</p> <p>Inhibitors of enzymes deficient or defective enzymes:</p> <p>Phenylketonuria</p> <p>Lactose deficiency</p>
٤&٥	<p>CARBOHYDRATE METABOLISM</p> <p>- Oxidation of Glucose:</p> <p>a) glycolysis</p> <p>١- Transport of glucose into cells</p> <p>٢- Reaction of glycolysis</p> <p>٣- Hormonal regulation of glycolysis</p> <p>٤- Clinical notes</p> <p>٥- Inherited enzyme deficiencies of glycolysis:</p> <p>i) Pyruvate Kinase deficiency</p> <p>ii) Lactic acidosis</p>
٦&٧	<p>b) TCA cycle</p> <p>١- The reactions of the TCA cycle:</p>

	i) Oxidation of Acetyl CoA by the TCA cycle ii) Energy production by the TCA cycle γ- Synthetic function of the TCA cycle ζ- Regulation of the TCA cycle
∧	Fructose & Galactose metabolism i) Disorders of Fructose metabolism ii) Disorders of Galactose metabolism
⁹&¹⁰	Glycogen metabolism i) Regulation of glycogen synthesis and degradation ii) Glycogen storage diseases
¹¹	Blood glucose and its regulation i) Diabetes mellitus and Insulin metabolism ii) Hypoglycemia
¹²-¹⁵	<b>PROTEIN METABOLISM</b> - Fate of Ammonia - Urea: (normal values, uremia) - Amino acids as buffers - Serum protein components - Insulin structure - Selected inborn errors of amino acid metabolism
¹⁶-¹⁹	<b>LIPID METABOLISM</b> - Oxidation of Fatty acids

	<ul style="list-style-type: none"> <li>- Ketone bodies</li> <li>- Cholesterol metabolism</li> <li>- Lipoprotein metabolism</li> </ul> <p style="text-align: right;">- Atherosclerosis</p>
٢٠&٢١	<p><b>NUCLEOTIDE METABOLISM</b></p> <ul style="list-style-type: none"> <li>- Disorders of Purines &amp; Pyrimidines metabolism</li> <li style="text-align: right;">- Uric acid synthesis &amp; hyperuricemia</li> </ul>
٢٢&٢٣	<p>Hemoglobin synthesis and types</p> <p>Metabolism of hemoglobin</p>
٢٤,٢٥&٢٦	Electrolytes
٢٧,٢٨&٢٩	<p>Trace elements types</p> <p>Function and needed</p>
٣٠	Toxicity

## كيمياء حياتيه سريره

المفردات العملية/ كيمياء حياتيه سريره

weeks	CONTENTS
١	- Introduction to clinical biochemistry laboratory & safety measures
٢	- Spectrophotometry
٣	Estimation of serum amylase

٤	Estimation of saliva amylase
٥	- Fasting & Postprandial blood sugar
٦	Glucose tolerance test (GTT)
٧	Estimation of serum Cholestrol (Total & HDL)
٨	Estimation of serum triglycerides
٩	Estimation of Ketone bodies in Urine
١٠	Introduction : type of protein
١١	of total protien <sup>١</sup> Estimation of serum
١٢	مقدمه حول الالبومين وفائدته بالجسم
١٣	Estimation of serum of albumin
١٤	اختبارات عمليه حول التجارب السابقه
١٥	اختبارات عمليه حول التجارب السابقه
١٦	مقدمه حول اليوريا وتأثيرها على الجسم
١٧	Estimation of serum of urea (enzymatic)
١٨	Estimation of serum of urea (Nessler's)
١٩	Estimation of serum uric acid
٢٠	Types of bilirubin
٢١	Estimation of serum total bilirubin
٢٢	Estimation of serum direct bilirubin
٢٣	اختبارات عمليه حول التجارب السابقه
٢٤	Estimation of serum sodium
٢٥	Estimation of serum potassium

٢٦	Estimation of serum calcium
٢٧	Estimation of serum Phosphorous
٢٨	Estimation of serum iron
٢٩	Estimation of serum electrolytes
٣٠	Quiz

## Medical microbiology

	نظري	عملي
Weeks	Topic covered	LAB
١	<b>Introduction</b> <b>Classification of bacteria</b>	Orientation microbiology lab
٢, ٣ ٤ ٥	- <b>Structure and function of bacteria</b> - <b>Growth and death of bacteria</b> - <b>Culturing of bacteria and media types</b>	Sterilization and disinfection The microscope Media preparation
٦, ٧	- Bacterial Physiology (Bacterial metabolism). - Nutrient cycles and regulation)	Aseptic technique and culturing microbes. Mixed culture (isolating microbes from body and environment).
٨	- <b>Bacterial genetics.</b> - <b>Genetic material.</b> - <b>Plasmids, replication, mutation and genetic recombination.</b>	-Preparing streak plates of single bacterial strain. -Preparing streak plates to generate single colonies of strains from a mixed culture
٩, ١٠	- <b>Microbial virulence factors and pathogenesis of bacterial infection.</b>	Growth on different media

	<b>- Microflora.</b>	
١١, ١٢	<b>- Chemotherapy and antibiotic resistance.</b>	-Study colonial morphology and staining.
١٣	<b>- Vaccination.</b>	-Gram and other staining techniques
١٤, ١٥	<b>-Gram positive cocci: Staphylococcus, Streptococcus and enterococcus.</b>	-Viable counts. -Growth curve from liquid medium.
١٦	<b>Gram positive spore forming bacilli (Clostridium and Bacillus)</b>	Microbial sensitivity to antibiotic.
١٧, ١٨	<b>- Gram positive non spore forming bacilli (Listeria and corynbacterium)</b>	Microscopy and data analysis.
١٩	<b>- Gram negative cocci: Neiseria</b>	
٢٠, ٢١	<b>Enteric Gram negative rods: E. coli, Klebsiella, Proteus, Pseudomonas, Acinetobacter, Shigella and salmonella.</b>	- Culturing of selective and deferential media. - API system.
٢٢	<b>Yersinia.</b>	
٢٣	<b>Vibrio.</b>	Microbial sensitivity to antibiotic.
٢٤	<b>Campylobacter and Helicobacter.</b>	Microscopy and data analysis.
٢٥	<b>Haemophilus, Bordetella and Brucella.</b>	
٢٦	<b>Chlamydia and Spirochaetes</b>	
٢٧	<b>Mycobacterium</b>	Bacterial examination of water or food.
٢٨	<b>Introduction to Medical Virology</b>	
٢٩, ٣٠	<b>Mycology</b>	Medical Mycology

## Human physiology/الفسلجة البشرية

### المفردات النظرية

Week	Topics (theory ٢hrs – practical ٤ hrs)
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1 <sup>st</sup>	General Introduction to Physiology Cell Physiology: General Functions, Cell Membrane Transport
2 <sup>nd</sup>	General Idea about Body fluids: Types, Composition, and Functions. Unit of Measurement, Conversion and Conversion factor.
3 <sup>rd</sup>	Blood: Composition, Specific Functions of each Compartment. Plasma and Serum Differences and Separation.
4 <sup>th</sup>	RBCs: Definition, Structure, and Normal Value; Hb Definition, Structure, and Normal Value; Blood Groups.
5 <sup>th</sup>	Erythropoiesis, Homeostasis, Death and Disposal.
6 <sup>th</sup>	White Blood Cells: Classification, Specific Function, Normal Value.
7 <sup>th</sup>	Platelet: Definition, Function, Normal Value, Thrombopoiesis and Hemostasis.
8 <sup>th</sup>	Heart Physiology: Conduction System, Cardiac Output (Mechanics and Control), and Factor Affecting.
9 <sup>th</sup> & 10 <sup>th</sup>	Vascular (Blood Vessels) Physiology: Mechanics and Control; Blood Pressure; and Factor Affecting.
11 <sup>th</sup>	Lymphatic Physiology: Organs: Composition, Function of Each part. Lymph: Structure, Hemodynamic and Factor Affecting their Movement.
12 <sup>th</sup>	Respiratory Physiology: Parts and Specific Functions; Ventilation: Mechanics and Control.
13 <sup>th</sup>	External Respiration, Gas Blood Transport, Internal Respiration: Mechanics, Control and Factor affecting.

14 <sup>th</sup>	Lung Volumes: Normal Values and Factor Affecting; Conscious and Un-Conscious Control of Respiration. Role of Pons and Medulla in Respiratory Transient.
15 <sup>th</sup>	Acid-Base Balance: Definition, Buffer Systems, and Role of Body Systems In the Regulation.
16 <sup>th</sup>	Digestive Physiology: GIT: Part General Function, Food Movement, and Control. Swallowing Reflex
17 <sup>th</sup>	Digestive Physiology: GIT Chemical Digestion, Absorption, and Control. Defecation Reflex
18 <sup>th</sup>	Digestive Physiology: Accessory Organs: Secretion and Their Role in Digestion. Secretion Control.
19 <sup>th</sup>	Urinary Physiology: General Functions of US. Urine: Definition and Normal Constitute. Physical and Chemical Property of Urine.
20 <sup>th</sup>	Role of Kidney in Urine Formation and Maintenance of Body Fluids and The Role In Acid-Base Balance.
21	Urinary Tract: Parts and Function. Urine Hemodynamic and Control. Normal Urine Daily Volume and Factor Affecting.
22	Endocrine Physiology: Endocrine Glands Types and Secretion. Hormone: Types, Normal Value, Function and Control of Secretion.
23	Reproductive Physiology: Male Sex Physiology:Function of Genital Organs.



	Male Sex Hormones: Normal Value, Production, Control, and Their Role in Reproduction.
٢٤	Female Sex Physiology: Function of Genital Organs. Normal Value of Female Sex Hormone, Production, and Control. Female Cycle, Pregnancy, Parturition, and Lactation: Hormonal Fluctuation and Control.
٢٥	Muscles Physiology: Types and Functions. Generation of Action Potential, Contraction, and Sliding-Filament theory.
٢٦	Nervous Physiology: Neuroglia: Definition, Types, and Function. Neurons: Definition, Types, and Function. CSF: Composition, Function, and Clinical Importance
٢٧	Generation of Action Potential. Neuronal Conduction: Types and Speed. Synapsis: Types, and Function.
٢٨	CNS: Parts and Functions
٢٩	Spinal Cord: Parts, General Functions, and Spinal Reflexes. PNS: Types and Function.
٣٠	Sensory System: Classification and General Function. Special Sense Organs: Types and General Function

### المفردات العملية

Week	Topics Covered
١	Introduction: Characteristics of good technician.

	How To avoid contamination of Specimen and Technician.
٢	Specimen: Type, Collection, and Preparation. Specimen identification Lab Reports: Types and righting
٣	Basic steps for drawing a blood specimen by venipuncture. Complications of venipuncture. Blood collection by skin punctures (Capillary Blood). Types of Syringes used in blood collection. Patient care after blood collection.
٤	Repeat: Blood drawing.
٥	Blood sample Hemolysis: Reasons and how to avoid. Blood Coagulants: Types and Uses. (EDTA, Citrate, Oxalate, Heparin, sodium fluoride).
٦	Specimen rejection: Reason and How to avoid. Type of anticoagulant used and their effect on Blood Cell Morphology.
٧	Blood separation to Cells, plasma, and serum. Transport, and storage blood sample
٨	Blood Smear: Preparation and Importance.
٩	PCV
١٠	Complete Blood Counts: RBCs. Manual and Electronic Method.
١١	Complete Blood Counts: WBCs. Manual and Electronic Method.
١٢	Repeat: Blood Cells Count
١٣	Determination of Hemoglobin: Cyanmethemoglobin Method
١٤	Determination of Hemoglobin: Electronic Method
١٥	Repeat
١٦	Urine Sample: Importance, Method of Collection, Preparation, Transport and Storage Physical Examination of Urine Sample.
١٧	Microscopic Examination of Urine: The identification of Epithelial Cells, Blood Cells, crystals, casts, .... etc.
١٨	Microscopic Examination of Urine: The identification of Bacteria, Yeast, Mucus, Casts, ..... Etc.
١٩	Repeat
٢٠	Chemical Examination of Urine
٢١	Repeated
٢٢	Semen Analysis: Type of Collection & Physical Examination
٢٣	Semen Analysis: Cell Counting Technique.
٢٤	Semen Analysis: Motility, Viability, & Morphology.
٢٥	Repeat Semen Analysis.

٢٦	Stethoscope and its uses.
٢٧	Blood Pressure
٢٨	Repeated
٢٩	ESC
٣٠	Body Temperature

### Molecular Biology/الاحياء الجزيئي

Week	نظري Topic covered	عملي LAB
١ - ٢	Introduction in Molecular Biology Structure of DNA& RNA DNA as the vehicle of inheritance	Introduction
٣ - ٥	DNA replication and transcription	Instruments & materials used in molecular biology lab
٦ - ٧	Gene expression and regulation	DNA isolation
٨	Post transcriptional modification	
٩ - ١٠	Translation and protein synthesis	Restriction enzymes
١١ - ١٣	Post translation modifications. Inhibitors of translation	
١٤ - ١٥	Repair of DNA – types of damages, repair	Electrophoresis
١٦ - ١٨	Gene mutation and chromosomal aberrations. Cause of mutation-chemical and physical agents.	
١٩ - ٢٣	Recombinant- DNA technology, Role of restriction endonucleases, plasmid and cosmid cloning vectors	Hybridisation techniques
٢٤ - ٢٧	Brief outline of molecular cloning.Applications or recombinant DNA technology.	Southern blotting
٢٨ - ٣٠	Disorders of Cell growth & carcinogenesis	Genetic engineering