1st stage ; 2nd Semster المرحلة الأولى: الفصل الدراسي الثاني

Title of the course: *Human Anatomy*

Reference text: Clinical Anatomy by Regions (Richard S. Snell 8th ed. 2010).

Credit hours/week: Theory 1, practical 2

Objective

Study the position of different organs in the thoracic and abdominal cavity including:

digestive system, circulatory system, lymphatic system, respiratory system, urinary

system, reproductive system, endocrine system, nervous system and skin

Human Anatomy

Circulatory system:

Location of vascular system (Heart, arteries, veins) 1L

Circulatory system:

Location of lymphatic system (Lymphatic capillary) 1

Lymphoid tissue:

Location of the (Thymus gland, Spleen & Lymphnodes) 1

Lymphoid nodule (MALT) & Tonsils 1

Nervous system:

Central & Peripheral nervous system by location1

Respiratory system:

Conducting portion (Nose, Nasopharynx, Trachea, Bronchus & Bronchioles).

Respiratory portion (Lung) 1

Digestive system:

Location of different parts of digestive tract (GIT) (Oral cavity, Mouth, Esophagus & Stomach)

Small intestine, Large intestine, Rectum & Anus 2

Digestive system:

Glands associated with the digestive tract by location (Salivary glands, Pancreas, Liver & Gall bladder) 1

Endocrine system:

Location of the pituitary gland

Location of the Adrenal, Thyroid, Parathyroid, Islet of Langerhans & Pineal glands 1

Male reproductive system:

Location of the testes.

Excretory genital ducts

Excretory genital glands (Seminal vesicles, Prostate & Cowper's glands) 2

Female reproductive system:

Location of ovary, Oviduct, Uterus & Vagina 2

Urinary system:

Location of the (kidney & nephron)

Location of the (Ureter, Bladder & Urethra) 1

Title of the course: *Pharmaceutical Calculation*

Pharmaceutical Calculations by Stoklosa

Objectives: It involves computation of pharmaceutical ingredients, dosage forms, pharmaceutical formulations and biological parameters of drug substances. Students should be able to make dilution and concentration of different types of liquids and those involved in preparing isotonic solutions, electrolyte solutions and intravenous admixtures.

- Dilution and concentration of pharmaceutical preparations.10
- Isotonic solutions. 6
- Electrolyte solutions (milliequivalents, millimoles and milliosmoles). 6
- Constituted solutions, I.V admixtures and flow rate calculations. 8

Title of the course: *Medical Physics*

Reference text: Physics for Biology and Medical Students, 2nd ed.

Objectives: Students should obtain the ability to deal with different concepts of physics, emphasizes the knowledge and skills required to efficiently discharge the duties and responsibilities of the pharmacist. The course deals with the concept of basic physics and its application in the medical field.

Medical Physics

General concepts: Method of physics and standards; thermodynamic system and system properties; conservation of energy principle; application of thermodynamics; the Zeroth law. 3

Pressure; temperature and temperature scales (Celsius, Fahrenheit, Kelvin); equation of state; ideal gas and real gas; general law of gases; Clauses equation and Vander Waales equation; equilibrium and its types; compressibility factor, coefficient of volume expansion, elastic coefficient (bulk modulus). 6

Heat and energy; work and its mechanical forms; power; the 1st law of thermodynamics; Boyles and Charles law. 3
The 2nd law of thermodynamics; reversible and irreversible process; entropy and enthalpy; internal energy; heat capacity and adiabatic process; the relation between pressure, volume and temperature in adiabatic process. 6

Fundamental of physics: Kinetic theory of a gas; electromagnetic waves; Maxwell equations; physical optics. 6

Radiation: Kirshoffs law; planks law; Stefan-Boltzman law; Wiens law; Black body and Albedo; Heat transfer (radiation, convection, conduction). 6

Production of X-Ray and X-Ray spectra; absorption of X-Ray; U.V and IR effects; medical and biological effects of radiation; radiotherapy. 3

Title of the course: *Organic Chemistry* I

Reference text:

1- Organic Chemistry by Robert T. Morrison and Robert N. Boyd.
2- Organic Chemistry by McCurry; 5th ed. Thomason learning; CA,USA; 2000.
Objectives: To enable students to understand the chemistry of carbon, and classification, properties and reactions of organic compounds. It includes understanding the basic structure
and properties of alkanes, alkenes and alkynes, in addition to the principles of

stereochemistry and features of aromatic compounds.

Organic Chemistry I

- Introduction. 3
- Alkanes and methane. 6
- Alkenes I and II 5
- Alkynes and dienes. 5
- Stereochemistry I & II 8
- Alcohols and ethers. 8
- Alkyl halides. 6
- Cycloalkanes. 4

Title of the course: *Histology* الأنسجة

Reference text: Basic Histology by Luiz Carlos 11th ed. (2005)

Objectives

Histology is a microscopic anatomy to identify mammalian tissues, accurately. Typically, histology is divided into two parts: general histology (the structure of tissues) and special histology (the structure of organs).

Histology

Circulatory system:

Structure of the vascular system (Heart wall, Arteries, Veins & Capillaries) 2

Circulatory system:

Structure of the lymphatic system (Lymphatic capillary).1

Lymphoid tissue:

Structure & function of the (Thymus gland, Spleen & Lymph nodes) 1

Lymphoid nodule (MALT) & Tonsils 1

Nervous system:

Central & Peripheral nervous system 3

Respiratory system:

Conducting portion (Nose, Nasopharynx, Trachea

Bronchus & Bronchioles), Respiratory portion (Lung) 3

Digestive system:

Digestive steps. General structure of the digestive tract (GIT) (Oral cavity, Mouth, Esophagus & Stomach). Small intestine, Large intestine, Rectum & Anus. 3

Glands associated with the digestive tract (Salivary glands, Pancreas, Liver & Gall bladder). 1

Endocrine system:

General structure and histology of the pituitary gland. 2

General structure of the Adrenal, Thyroid, Parathyroid, Islet of Langerhans & Pineal glands. 2

Male reproductive system:

General structure of the testes. Stages of spermatogenesis. 2

Excretory genital ducts-Excretory genital glands (Seminal vesicles, Prostate & Cowper's glands) 1

Female reproductive system:

General structure of ovary, Oviduct, Uterus & Vagina.

Stages of follicle development, and Ovulation 3

Urinary system:

Structure of the (kidney & nephrons)

Histology of the nephron (filtration, absorption & excretion).

Structure of the (Ureter, Bladder & Urethra). 3

The skin

Thick & Thin skin 2