University of Jordan
Faculty of Medicine
Department of Physiology and Biochemistry
Syllabus: Introduction to Physiology (0501110)
FOR MEDICAL STUDENTS
Spring 2020-2021

Subjects	Lect. No.	Pages in Guyton 12th	Pages in Guyton 13th
Introduction to Physiology: General outline of physiology. **Homeostasis**, control systems, negative & positive feedback mechanism	1	FM 3-9	FM 3-10
Cell Membrane	2	FM 11-14	FM 11-14
Units: moles, osmoles and equivalent. Osmosis and osmotic pressure	3	MK	MK
Transport-I (Passive) A. Simple Diffusion B. Facilitated Diffusion C. Osmosis	4	FM 45-52	FM 47-54
Transport-II (Active) A. Primary Active. B. Secondary Active: Co-and Counter-Transport C. Vesicular transport	5-6	MK 52-56	MK 55-59
Excitable Membranes: Resting Membrane Potential: Origin And Determinants. Distribution Of Different Ions Across Cell Membranes	7	MK 57-69	MK 61-74
Electrochemical Equilibrium (Nernst Equation) As a Predictor For RMP -E_{Na+}, E_{K+}, E_{Ca++}, E_{Cl-} -Other Equations Which Predict RMP: Goldman-Hodgkin-Katz Equation And Chord Conductance Equation	8-9		
Autonomic Nervous System (I) Organization: Sympathetic and Parasympathetic	10	MK 729-740	MK 773-780
Autonomic Nervous System (II)	11		
Body Water: Distribution & Measurements	12	MK 285-296	MK 305-316
Abnormalities of body fluid volume regulation Hypo-osmotic dehydration & overhydration. Hyper-osmotic dehydration & overhydration. Edema (definition, types, difference between IC & EC edema).	13		
All or none versus graded potential	14	MK 560-562	MK 560-562
Excitatory Post Synaptic Potential EPSP And Inhibitory Post Synaptic Potential IPS		MK 552-558	MK 587-593
Action Potential: Cardiac Action Potential (Fast Response AP) Vs Slow Response AP (The Pacemaker Concept)	22-23	YS 101-104 115-120	YS 109-113 123-129

Subjects	Lect. No.	Pages in Guyton 12th	Pages in Guyton 13th
Basic neuronal circuits: Synapses: types, transmission of AP, neurotransmitters, facilitation, inhibition, summation, electrical events, processing, fatigue…etc. Excitatory and Inhibitory postsynaptic potential	16-17	FM 546-558	FM 580-593
- Neurotransmitters, types, synthesis, location (pre-and postgangelionic) - Receptors: types and location. - Adrenal medulla.	18	FM 559-570	FM 595-606
Neurons: Types and classifications	19		
Microcirculation: Capillary Structure; Fluid Filtration (Forces) & Reabsorption - Starling Law Of Capillary Exchange - Lymphatic System	20-21	YS 177-186	YS 189-199
Receptors: types and adaptation - Membrane or intracellular - Ion channels - G-protein - Enzyme linked - Intracellular - Second messengers - cAMP and cGMP, Phospholipid - Calcium calmodulin and IRS	24-25	FM 881-891	FM 925-935
Signal Transduction (Regulation of cellular machinery) Extracellular regulators: nervous, endocrine, paracrine and autocrine	26-27	FM 910-912 940-941	FM 954-956
Steroids: Their Signal Transduction And Mechanism Of Action	28	FM 926-927 931	FM 970-971 976

Midterm Exam 40% and Evaluation
Final Exam 60%
Textbook: Guyton and Hall Textbook of Medical Physiology: 13th edition 2016