

University of Jordan
Faculty of Medicine
Department of Physiology and Biochemistry
Syllabus: Introduction to Physiology (0501110)
FOR MEDICAL STUDENTS
Spring 2022-2023

Subjects	Lect. No.	Pages in Guyton Jordan Edition	Pages in Guyton 14 th	Pages in Guyton 13 th
Introduction to Physiology: General outline of physiology. Homeostasis , control systems, negative & positive feedback mechanism	1	3-10	3-10	3-10
Cell Membrane	2	12-15	13-16	11-14
Units: moles, osmoles and equivalent. Osmosis and osmotic pressure	3			
Transport-I (Passive) A. Simple Diffusion B. Facilitated Diffusion C. Osmosis	4	47-54	51-59	47-54
Transport-II (Active) A. Primary Active. B. Secondary Active: Co-and Counter-Transport C. Vesicular transport	5-6	55-59	59-62	55-59
Excitable Membranes: Resting Membrane Potential: Origin And Determinants. Distribution Of Different Ions Across Cell Membranes	7	61-73	63-76	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			
All or none versus graded potential	10	61-73	63-76	61-74
Excitatory Post Synaptic Potential EPSP And Inhibitory Post Synaptic Potential IPS		587-593	573-576	587-593
Autonomic Nervous System (I) Organization: Sympathetic and Parasympathetic	11	773-780	763-773	773-780
Autonomic Nervous System (II)	12			
Body Water: Distribution & Measurements	13	305-321	305-320	305-316
Abnormalities of body fluid volume regulation Hypo-osmotic dehydration & overhydration. Hyper-osmotic dehydration & overhydration. Edema (definition, types, difference between IC & EC edema).	14-15			
Action Potential: Cardiac Action Potential (Fast Response AP) Vs	16-17			

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Slow Response AP (The Pacemaker Concept)		113-113 123-129	113-117 127-133	109-113 123-129
Basic neuronal circuits: Synapses: types, transmission of AP, neurotransmitters, facilitation, inhibition, summation, electrical events, processing, fatigue...etc. Excitatory and Inhibitory postsynaptic potential	18-19	577-593	572-585	580-593
- Neurotransmitters, types, synthesis, location (pre-and postganglionic) - Receptors: types and location. - Adrenal medulla.	20	584-587 595-606	576-579 587-598	585-586 595-606
Neurons: Types and classifications	21			
Microcirculation: Capillary Structure; Fluid Filtration (Forces) & Reabsorption - Starling Law Of Capillary Exchange - Lymphatic System	22-23	189-199	193-204	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	925-935	915-927	925-935
Signal Transduction (Regulation of cellular machinery) Extracellular regulators: nervous, endocrine, paracrine and autocrine	26-27	954-956	944-946	954-956
Steroids: Their Signal Transduction And Mechanism Of Action	28	970-971 976-977	960-961 966-967	970-971 976-977

Midterm Exam 40% and Evaluation

Final Exam 60%

Textbook: Guyton and Hall Textbook of Medical Physiology: 13th edition 2016, Jordan Edition or 14th edition 2021