Philadelphia University	PHILADELPHIA UNIVERSITY THE WAY TO THE FUTURE	**Approved Date: 10/10/2021**
Faculty: pharmacy		**Issue: 1**
Department:-		**Credit Hours:3**
Academic Year:2021/2022	**Course Syllabus**	**Bachler:**

Course Information

Course No.	Course Title	Prerequisite	
0520200	Physiology (1)	Anatomy and Histology 052012100	
Course Type		Class Time	Room No.
☐ Univirsity Requirement ■ Fuclty Requirement ■ Major Requirement ☐ Elective Compulsory		12:45-2:00 Sun.Tus 11:15-12:45 Mon,Wend	614,610

Instructure Information

Name	Office No.	Phone No.	Office Hours	E-mail
Noor Batarseh	527	2138	11:30-12:30 Sun,Tus 12:30-1:30 Mon,Wend	nbatarseh@philadelphia.edu.jo

Course Delivery Method

☐ Blended	☐ Online	■ Physical
Learning Model		
Percentage	Synchronous	Asynchronous	Physical
			100%

Course Description

The course is designed to provide the students with knowledge about the normal functions and mechanism of various physiological systems basis on the anatomical and histological correlation, including: blood cells and blood clotting, nerves and muscles, Contractions of skeletal muscles, excitation contraction coupling. Neuromuscular transmission, Autonomic nervous system, Digestive system, renal system, finally, acid & base balance and electrolytes balance & imbalance.

Course Learning Outcomes

Number	Outcome	Corresponding Program Outcomes	Corresponding Competencies
Knowledge			
K1	Develop Information about the functional principles of physiology ; and apply knowledge for mechanisms of action of the body systems	K_P1	C1
K2	Building further functional anatomical and histological relationship which have been studied previously by students	K_P1	C1
K3	Make better understanding for physiology II.	K_P1	C1
Skills			
S1	Compare the normal physiological mechanisms with abnormal ones	S_P3	C9
S2	The ability to analyze the normal physiological mechanisms to educate all audiences by determining the most effective and enduring ways to impart information	S_P6	C12
S3	Engage with groups work verbally and non verbally for doing certain scientific activity in physiology and research Activity	S_P6	C12

Learning Resources

Course Textbook	**Introduction to Human physiology**: Laura Lee Sherwood; 9th edition; 2016; ISBN-13: 978-0134399416
Supporting References	**Text Book of Medical physiology**: John E. Hall Guyton; 13th edition; 2014; ISBN-13: 978-1455770052.
Supporting Websites	www.scinecedirect.com, www.youtube.com
Teaching Environment	■ **Classroom** ☐ **laboratory** ☐ **Learning Platform** ☐ **Other**

Meetings and Subjects Time Table

Week	Topic	Learning Method*	Task	Learning Material
1	**The vision and mission of Pharmacy Faculty** **Course syllabus** • Introduction to physiology course	Lecture		Vision and Mission of faculty of pharmacy Course syllabus Text Book, unit 1
2	**Blood and Circulation:** • Functions of the circulatory system • Major components of the circulatory system • Composition of the blood; plasma; Formed elements of blood • Hematopoiesis; Regulation of Erythropoiesis • White blood cells types and Functions	Lecture		Text Book, unit 4, chapters33,34,36,37
3	**The nervous system (neurons and synaps):** • Neurons & supporting cells • Electrical activity in axons • Action potentials; Refractory Periods • All or none law	Lecture	Quiz	Text Book, unit 9, chapters 46
4	**The nervous system (neurons and synaps):** • Conduction Of nerve impulses in myelinated and un myelinated axons; Synapse • Electrical & chemical Synapses	Lecture		Text Book, unit 9, chapters 46,47,48
5	**The nervous system (neurons and synaps):** • Action of neurotransmitter • Acetylcholine; Acetyl cholinesterase • Channels: Chemically Regulated channels; Ligand-Operating channels; G-Protein- Operating channels	Lecture Collaborative learning	Video assissgment	Text Book, unit 11, chapters 46, 61
6	**The autonomic nervous system** • Neural control of the Autonomic Nervous • Division Collateral ganglia; Adrenal glands; parasympathetic division.	Lecture		Text Book, unit 11, chapters 61
7	**The autonomic nervous system** • Functions of the Autonomic Nervous system • Adrenergic &Cholinergic transmission • Responses to adrenergic Stimulation; Responses to Cholinergic Stimulation • Organs with dual innervations	Lecture	Quiz	Text Book, unit 11, chapters 46, 61
8	**Physiology of gastrointestinal tract (GIT)** • Functions of Month, salivary glands, pharynx, Small intestine.	Lecture		Text Book, unit 12, chapters 63

	• Digestion and absorption of Nutrients, carbohydrate, proteins and lipids			
9	**Physiology of gastrointestinal tract (GIT)** • Large intestine and rectum, and defecation reflex • Liver and pancreas and Importance of bile • Functions of pancreatic Enzymes and its role In digestion	Lecture Collaborative learning		Text Book, unit 12, chapters 63,64,65
10	**Physiology of renal system** • Structure & function of the Kidneys: Gross structure of the Urinary system • Micturition Reflex; Microscopic structure; and Nephron tubules. • Glomerular filtration; Glomerular ultra filtrate • Physiology of glomerular Filtration rate • Sympathetic Nerves effects, Renal Auto regulation • Reabsorption Of salt & water: Reabsorption In proximal tubule; Active and Passive transport • The Countercurrent multiplier; Ascending limb of the Loop of Hence; Countercurrent multiplication	Lecture	Quiz	Text Book, unit 5, chapters 26,27,28
11	**Physiology of renal system** • Collecting duct: • Effect of ADH. • Renal plasma clearance: Transport process affecting Renal clearance; Tubular Secretion of drugs; Renal Clearance of insulin: Measurement of GFR; Clearance Calculations; Clearance of urea; Clearance Of PAH: measurement of renal Blood flow • Reabsorption of glucose; Glycosuria.	Lecture project based learning		Text Book, unit 5, chapters 26,27,28
12	**Physiology of renal system** • Renal control of electrolyte & acid-base balance • Roll of aldosterone in Na, K balance; Sodium reabsorption; Potassium secretion. • Aldosterone secretion: • Juxtaglomerular apparatus; • Rennin secretion; Role of Macula dense; Relationship between Na + , k+ , and h+ • Renal acid –base regulation reabsorption of HCO3 in the proximal tubule; Urinary buffers	Lecture	Home work	Text Book, unit 5, chapters 29,30,31

13	**Acid and base balance, electrolytes balance and imbalance :** • Fluids and electrolyte's and water compartments • Regulation of water intake and output, Electrolytes, and Electrolytes in body fluids • Electrolyte regulation • Acid- base balance • Buffer system, Bicarbonate buffer system, phosphate buffer system, Respiratory mechanisms ,Respiratory compensating for metabolic acidosis, Respiratory alkalosis renal mechanisms, and Effects of pH changes.	Lecture		Text Book, unit 5, chapters 29,30,31
14	**Physiology of muscle cells** • Membrane action potentials in Skeletal and smooth muscles fibers	Lecture		Text Book, unit 2, chapters 6,7,8
15	**Physiology of muscle cells** • Neuromuscular transmission and Muscles contractions.	Lecture		Text Book, unit 2, chapters 6,7,8
16	**Final Exam**			

*Includes: lecture, flipped Class, project based learning, problem solving based learning, collaboration learning.

Course Contributing to Learner Skill Development

Using Technology
Using Microsoft programs (word, power point), YouTube videos, Google and scientific websites
Communication Skills
Videos and home works discussion
Application of Concept Learnt
Transfer learnt Physiological information about body systems to others

Assessment Methods and Grade Distribution

Assessment Methods	Grade	Assessment Time (Week No.)	Course Outcomes to be Assessed
Mid Term Exam	**% 30**	6 th	K1,K2,S1
Term Works*	**% 30**	Continuous	S1-S3
Final Exam	**% 40**	16 th	K1-K3 S1-S3
Total	**%100**		

* Include: quizzes, in-class and out of class assignment, presentations, reports, Videotaped assignment, group or individual project.

Alignment of Course Outcomes with Learning and Assessment Methods

Number	Learning Outcomes	Corresponding Compatienes	Learning Method*	Assessment Method**
Knowledge				
K1	Develop Information about the functional principles of physiology ; and apply knowledge for mechanisms of action of the body systems	C1	Lecture Project Based Learning	Quizzes Exam Home work
K2	Building further functional anatomical and histological relationship which have been studied previously by students	C1	Lecture Collaborative learning	Exam Video assignments
K3	Make better understanding for physiology II.	C1	Lecture Collaborative learning	Exam Home work
Skills				
S1	Compare the normal physiological mechanisms with abnormal ones	C9	Lecture	Quizzes Exam
S2	The ability to analyze the normal physiological mechanisms to educate all audiences by determining the most effective and enduring ways to impart information	C12	Lecture	Video assignment
S3	Engage with groups work verbally and non verbally for doing certain scientific activity in physiology and research Activity	C12	Lecture	Video assignment Home work

*Include: lecture, flipped class, project based learning, problem solving based learning, collaboration learning.
** Include: quizzes, in-class and out of class assignments, presentations, reports, videotaped assignments, group or individual projects.

Course Polices

Policy	Policy Requirements
Passing Grade	The minimum pass for the course is (50%) and the minimum final mark is (35%).
Missing Exams	• Anyone absent from a declared semester exam without a sick or compulsive excuse accepted by the dean of the college that proposes the course, a zero mark shall be placed on that exam and calculated in his final mark. • Anyone absent from a declared semester exam with a sick or compulsive excuse accepted by the dean of the college that proposes the course must submit proof of his excuse within a week from the date of the excuse's disappearance, and in this case, the subject teacher must hold a compensation exam for the student.

	• Anyone absent from a final exam with a sick excuse or a compulsive excuse accepted by the dean of the college that proposes the material must submit proof of his excuse within three days from the date of holding that exam.
Attendance	The student is not allowed to be absent more than (15%) of the total hours prescribed for the course, which equates to six lecture days (n t) and seven lectures (days). If the student misses more than (15%) of the total hours prescribed for the course without a satisfactory or compulsive excuse accepted by the dean of the faculty, he is prohibited from taking the final exam and his result in that subject is considered (zero), but if the absence is due to illness or a compulsive excuse accepted by the dean of the college that The article is introduced, it is considered withdrawn from that article, and the provisions of withdrawal shall apply to it.
Academic Integrity	Philadelphia University pays special attention to the issue of academic integrity, and the penalties stipulated in the university's instructions are applied to those who are proven to have committed an act that violates academic integrity, such as cheating, plagiarism (academic theft), collusion, intellectual property rights.

Program Learning Outcomes to be assessed in this Course

Number	Learning Outcome	Course Title	Assessment Method	Targeted Performance level

Description of Program learning Outcomes Assessment Method

Number	Detailed Description of Assessment

Assessment Rubric of the Program Learning Outcomes
