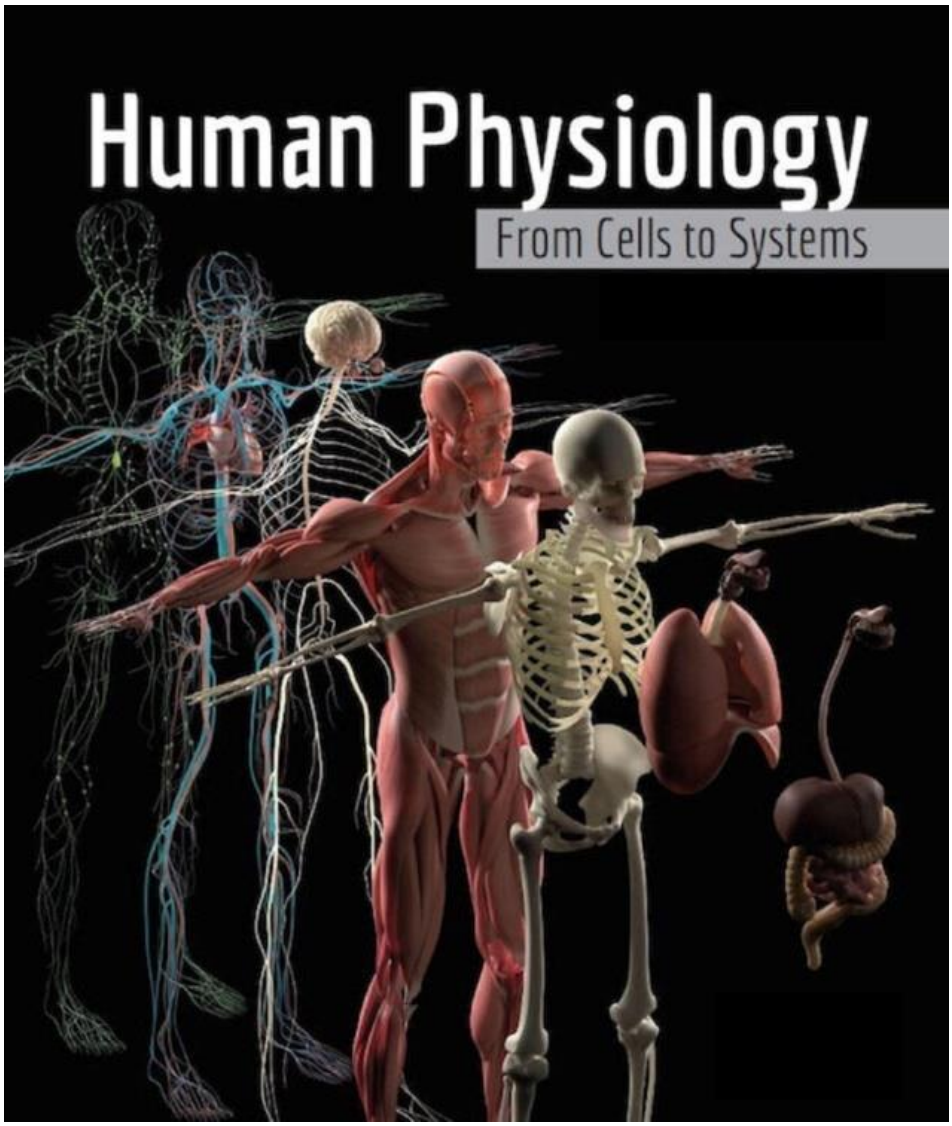
Kingdom of Saudi Arabia
Ministry of Higher Education
Northern Border University (NBU)
College of Medicine
Physiology Core course 1203211

المملكة العربية السعودية
وزارة التعليم
جامعة الحدود الشمالية
كلية الطب
علم وظائف الاعضاء (1203211)

STUDY GUIDE



Course coordination

Female section **Safya Ebraheem** (safya.ebraheem@nbu.edu.sa)

Male section **Prof Hafeezullah Wazir Ali** (Hafeezullah.Qureshi@nbu.edu.sa)

Course Identification

1. Credit hours	3
2. Level/year at which this course is offered	Level 4
3. Pre-requisites for this course	Pass first year
4. Co-requisites for this course	None

Actual Learning Hours

No	Activity	Learning Hours
Contact Hours		
1	Lecture	35
2	Laboratory	20
3	Tutorial	-
4	PBL	-
5	CP	-
	Total	55
Other Learning Hours		
1	Study	40
2	Assignment	10
3	Library	15
	Total	120

Course Objectives and Learning Outcomes

1. Course Description

During this course, the student will utilize the basic science literature of cell and tissues to identify the normal functioning of human body systems, cell functioning, transport across the membrane, these will help student to recognize the main functions of different organ systems of human body.
The student will apply knowledge and skill in correlation of their functioning of body systems which will enable the student to develop concepts and sufficient understanding of the subject to be able to pursue post-graduate studies and continuing medical education.

2. Course Main Objective

By the end of this course the student will be able to:

1. Describe the functions of the cells such as cell membrane, cell organelles, action potential and transport across the membrane.
2. Recognize different functional systems of the body.
3. Operate the power-lab computer system to practice the heart rate, ECG, respiratory rate, during exercise.

Course Learning Outcomes

	CLOs	Aligned-PLOs
1	**Knowledge and Understanding**	
1.1	Recognize the functions of cell and the basic functions of the different body systems and the principles physiological Homeostasis and its Mechanism.	**K1**
1.2	Describe the body fluid compartments and role of different systems in maintaining total body water with special focus on kidney.	**K1**
2	**Skills :**	
2.1	Operate the power-lab computer system to practice the heart rate, ECG, respiratory rate during rest and exercise	**S2**
2.2	Demonstrate osmotic fragility and nerve conduction	**S2**
2.3	Apply the core-writing skills to express his knowledge and ideas	**S6**
3	**Values:**	
3.1	Employ the skill of self-learning through updated medical information from different approved sources	**V1**

C. Course Content

No	List of Topics	Contact Hours
	LECTURES	
1.	Physiological Homeostasis and its Mechanism	1
2.	Control Systems of the Body	1
3.	Cell - Its functional units	1
4.	Cell signaling (Intercellular communication)	1
5.	Transport across cell membrane	1
6.	Membrane potentials - Basic physical principles	1
7.	Action potential	1
8.	Action potential in different tissues	1
9.	Body fluid compartments	1
10.	Introduction to cardiac system	1
11.	Blood flow from heart to systems	1
12.	Blood & its constituents – Introduction	1
13.	Organization of nervous system	1
14.	Organization of nervous system & Special Senses	1
15.	Autonomic nervous system – Functions	1
16.	Functional organization of urinary system	1
17.	Excess fluid in tissues & safety factors	1
18.	Body fluid osmolarity	1
19.	Functional organization of respiratory system	1
20.	Functional organization of digestive system	1
21.	Basal Metabolic Rate & factors affecting it	1
22.	Dietary Balances; Regulation of Feeding; Obesity & Starvation	1
23.	Adaptation of human body to environmental temperatures	1
24.	Effects of heights on human body	1
25.	Effects of depths on human body	1
26.	Exercise & adaptation of human body	1
27.	Endocrine system - General organization	1
28.	Male & female reproduction – Introduction	1
29.	Placental functions	1
30.	Fetal Physiology	1

No	List of Topics	Contact Hours
31.	Neonate to Childhood - Developmental changes	1
32.	Growth of body tissues - Physiological control	1
33.	Eruption & development of teeth	1
34.	Growth pattern in males & females (Adolescence to Old age)	1
35.	Functions of Integumentary system	1
	PRACTICAL	
1.	Practical - Nerve conduction studies	2
2.	Practical - Osmotic fragility test	2
3.	Practical - Packed cell volume hematocrit	2
4.	Practical - Blood pressure recording	2
5.	Practical - Auscultating Heart sounds	2
6.	Practical - Palpitating radial pulse	2
7.	Practical - Identifying blood groups	2
8.	Practical - Color vision	2
9.	Practical - Effect of exercise on heart rate & respiratory rate	2
10.	Practical - Pulmonary function test	2

Assessment Methods for Students

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding**		
1.1	Recognize the functions of cell and the basic functions of the different body systems and the principles physiological Homeostasis and its Mechanism.	Direct instruction (Lectures)	Essay questions MCQs
1.2	Describe the body fluid compartments and role of different systems in maintaining total body water with special focus on kidney.	Direct instruction (Lectures)	Essay questions MCQs
2.0	**Skills**		
2.1	Operate the power-lab computer system to practice the heart rate, ECG, respiratory rate during rest and exercise	Laboratory based strategies (Direct instruction, demonstration, and cooperative)	OSPE
2.2	Demonstrate osmotic fragility and	Laboratory based	OSPE

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
	nerve conduction	strategies (Direct instruction, demonstration, and cooperative)	
2.3	Apply the core-writing skills to express his knowledge and ideas	Homework-assignment	Assignment rubric
3.0	**Values**		
3.1	Employ the skill of self-learning through updated medical information from different approved sources	Homework-assignment	Assignment rubric

Assessment Tasks for Students

#	Assessment task	Percentage of Total Assessment Score
2	Midterm exam (written / SAQs & MCQs)	25
3	Assignment	15
4	Final exam (written / SAQs & MCQs)	40
5	OSPE	20

Teaching and Assessment Blueprint

	Teaching strategies	Assessment methods	Knowledge		Skill			Values	% of total contact hours	% of total summative marks
			K1	K2	S1	S2	S3	V1		
Cell physiology and Homeostasis	Direct instruction (Lectures)	Essay questions MCQs Homework-assignment	√	√				√	9.1	10-12

	Teaching strategies	Assessment methods	Knowledge		Skill			Values	% of total contact hours	% of total summative marks
			K1	K2	S1	S2	S3	V1		
Electrophysiology	Direct instruction (Lectures)	Essay questions MCQs Homework-assignment	√	√				√	9.1	10-12
Body fluid	Direct instruction (Lectures)	Essay questions MCQs Homework-assignment	√	√				√	9.1	10-12
Cardio-respiratory physiology	Direct instruction (Lectures)	Essay questions MCQs Homework-assignment	√	√				√	9.1	10-12
Physiology of Digestion and metabolism	Direct instruction (Lectures)	Essay questions MCQs Homework-assignment	√	√				√	9.1	10-12
Neuroendocrine regulation	Direct instruction (Lectures)	Essay questions MCQs Homework-assignment	√	√				√	9.1	10-12
Growth and Development	Direct instruction (Lectures)	Essay questions MCQs Homework-assignment	√	√				√	9.1	10-12
Practical – Blood and tissue fluid experiments	Laboratory based (Demonstration)	OSPE			√	√	√		10.9	6-8
Practical – Electro and Neurophysiology	Laboratory based (Demonstration)	OSPE			√	√	√		7.2	4-6
Practical – Cardiorespiratory physiology	Laboratory based (Demonstration)	OSPE			√	√	√		18.2	10-12

	Teaching strategies	Assessment methods	Knowledge		Skill			Values	% of total contact hours	% of total summative marks
			K1	K2	S1	S2	S3	V1		

Learning Resources

Required Textbooks	1. Textbook of Medical Physiology; 13th ed.; Guyton AC and Hall JE.; Saunders/Elsevier Co 2. Human Physiology from Cell to System; 8th ed.; Lauralee Sherwood, Brooks/Cole Pub. Co
Electronic Materials	**NA**
Other Learning Materials	**NA**

Course quality evaluation

After the end of the course, please give your **FEEDBACK** through the following Link:

https://docs.google.com/forms/d/1IKf4va0FSQSr-7MCXVpdaTsni9W7WYZ6WPVzVO-Z65A/viewform?edit_requested=true

Or through the following code:

"FEEDBACK IS
THE BREAKFAST OF CHAMPIONS."
- Ken Blanchard -

برنامج كلية الطب
Program MBBS

جامعة الحدود الشمالية
NORTHERN BORDER UNIVERSITY
كلية الطب

الرسالة :

إعداد أطباء يتميزون بالكفاءة المعرفية السريرية والبحثية لتقديم الخدمات الصحية وتعزيز صحة المجتمع محلياً وإقليمياً

الأهداف:

- تخريج الأطباء المتميزين بالمهارات المهنية والبحثية.
- تعزيز ممارسات القيادة والتواصل الفعال.
- إكساب الطلاب مهارات العمل الجماعي والتعلم الذاتي المستمر.
- تحسين جودة الخدمات الصحية والشراكة المجتمعية محلياً.
- تشجيع البحث العلمي الطبي.

Mission:

Preparing physicians characterized by cognitive, clinical and research competencies to provide health services that enhance community health locally and regionally.

Goals:

- Graduating distinguished physicians with professionalism and research skills.
- Enhance the practice of leadership and effective communication.
- Teach students teamwork skills and continuous self-learning.
- Improving the quality of health services and community partnership regionally.
- Encouraging scientific medical researches.

From the North to the Nation

من الشمال .. إلى الوطن