

Kingdom of Saudi Arabia

Alfarabi Private College



المملكة العربية السعودية  
كلية الفارابي الأهلية

كلية الفارابي الأهلية - الرياض  
ALFARABI PRIVATE COLLEGE-ALRIYADH



Title

**Human Body I**

**Course specifications**



**Code:** HBI231

**Title:** Human Body I

**Year:** Two

**Level:** Three

**No of weeks:** 9

**Type of educational unit:** Longitudinal course



Integrated block



**No of credit hours:** 6 (4+1+1)

**Pre-requisites for the course:**

**Course principle coordinator:**

**Course support coordinator:**

**Members of the Coordinating Committee:**

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### Description

In this module, students will learn the biochemistry and physiology of the typical cell. The biochemical focus will be on the fundamentals of the forces affecting molecular interactions; the structure-function relationships of proteins and carbohydrates; kinetics and catalysis; the physiological focus will be on the structure and function of subcellular organelles; and the foundations of some specialized cells – blood and lymphoid cells, muscle cells, and nerve cells - which will be needed as students' progress through future modules.

This block serves as an integrated block encompassing the structural macroscopic and microscopic organization of the human body and an appreciation for how the structural organization relates to physiology and biochemistry. It is designed to ease clinical applications with basic science concepts in the future. This course takes a systemic rather than regional approach to the anatomy, physiology and biochemistry.

### Objectives

	NQF Learning Domains And Course Learning Outcomes	Course Teaching Strategies	Course Assessment Methods
<b>1.0</b>	<b>Knowledge</b>		
1.1	Explain the normal structure and function of the body in relation to its organ systems. (SaudiMEDS-1.1)	Lectures & seminars	Written and spotter examinations
1.2	Demonstrate a knowledge of the human life cycle and its' effect on a human body's normal structure and function (such as pregnancy, birth, growth and development, and aging)	Lectures & seminars	Written and spotter examinations



	(SaudiMEDS-1.2).		
1.3	Explain the biochemical, molecular and cellular mechanisms that are essential for maintaining body homeostasis. (SaudiMEDS-1.3)	Lectures & seminars	Written and spotter examinations
1.4	Define anatomical terms and be able to use them to describe the relative positions of body parts and different movements of body.	Lectures & seminars	Written and spotter examinations
1.5	Classify the bone on the basis structure, shape, histology, development and region wise with their examples.	Lectures & seminars	Written and spotter examinations
1.6	Describe and give the differentiation the three types of the joints i.e. Synovial, cartilaginous and fibrous with their typical characteristics.	Lectures & seminars	Written and spotter examinations
1.7	Describe and define the basics of the nervous system and spinal nerve formation.	Lectures & seminars	Written and spotter examinations
1.8	Define and describe cells, tissues, staining and microscopy.	Lectures & seminars	Written and spotter examinations
1.9	Define the four basic types of the tissues (Epithelial tissue. Connective tissue, Muscle tissue and Nervous tissue.)	Lectures & seminars	Written and spotter examinations
1.10	List and describe the structure and location of each type of epithelial tissue.	Lectures & seminars	Written and spotter examinations
1.11	Define the histology of skin and its appendages e.g. nail hairs and glands with their functions.	Lectures & seminars	Written and spotter examinations
1.12	Describe the major cell types found in connective tissue.	Lectures & seminars	Written and spotter examinations
1.13	Classify the major types of fibers produced by fibroblasts.	Lectures & seminars	Written and spotter examinations
1.14	List and describe the different types of connective tissues. Give the example of each type in the body.	Lectures & seminars	Written and spotter examinations
1.15	Describe the three different types of muscle tissue. Tell how they differ and give examples of where you find each in the body.	Lectures & seminars	Written and spotter examinations
1.16	Study of blood and Blood vessels arteries, arterioles, capillaries, venules and veins.	Lectures & seminars	Written and spotter examinations
1.17	Describe the movements of fluids between different compartments caused by increase or decrease in the extra-cellular fluid osmolarity.	Lectures & seminars	Written and spotter examinations
1.18	Describe the general organization of the sympathetic and parasympathetic systems.	Lectures & seminars	Written and spotter examinations
1.19	Describe the functional roles of the sympathetic and parasympathetic systems in controlling visceral function.	Lectures & seminars	Written and spotter examinations
1.20	Describe the mode of chemical transmission,	Lectures &	Written and spotter



	receptor actions and consequences of blocking or enhancing these receptor actions.	seminars	examinations
1.21	Describe excitable tissues like Nerve and Muscle. Appreciate nerve impulse generation and conduction, neuromuscular junction. Mechanism of muscle contraction.	Lectures & seminars	Written and spotter examinations
<b>2.0</b>	<b>Cognitive Skills</b>		
2.1	Appreciate the main differences between the somatic and autonomic nervous systems.	Clinical & Practical sessions	Spotter examination
2.2	Identify major routes and normal ranges for water intake and loss and predict how changes in intake and loss affect the distribution of total body water.	Clinical & Practical sessions	Spotter examination
2.3	Identify normal ECF (plasma) osmolarity and concentrations of Na <sup>+</sup> , K <sup>+</sup> , Cl <sup>-</sup> , HCO <sub>3</sub> <sup>-</sup> , Proteins, Creatinine and Urea; and contrast these values with those for intracellular fluid.	Clinical & Practical sessions	Spotter examination
<b>3.0</b>	<b>Interpersonal Skills &amp; Responsibility</b>		
3.1			
<b>4.0</b>	<b>Communication, Information Technology, Numerical</b>		
4.1	Communicate effectively	Seminars	
<b>5.0</b>	<b>Psychomotor</b>		
5.1	Identify the major cellular components in micrographs	Practical session	Spotter
5.2	Identify the major tissues and their components in micrographs	Practical session	Spotter
5.3	Identify the gross anatomical features of the major systems of the human body	Practical session	Spotter

### Content

Topics to be covered in this block:

- General Anatomy:** deals with introduction of basic terminology of anatomy, body planes, movements, types of bone, joints, muscles classification,
- Physiological Study** of the body fluids and its composition, homeostasis, transport, osmosis, nerve muscle and action potential.
- Basic Classification of Nervous System:** Study of autonomic and somatic on physiological and anatomical aspect. Basic concept of spinal cord and typical spinal nerve and Signal Transduction.
- General Histology,** Review of cell and study of microscope and staining, classification of tissue e.g. connective, muscular, epithelium and nervous tissue.

### Learning strategy

The block will utilize the student-centeredness, integration and the PBL approaches to maximize correlation, learning and retention of the learned knowledge, skills and attitudes. Lectures will be of the interactive type and as few as possible. Certain materials will be studied through practical sessions and some of the important issue related to growth and development will be learned through clinical scenarios.



Hours	Lecture	Tutorial (PBL)	Tutorial (non-PBL)	PBL	Practical session	Other	Total
Contact	45x1			15x2	15x2		
Credit	3			1	1		

Week One		
Type of activity	Code	Title of activity
Lecture 1	L1	Introduction to the block
Lecture 2	L2	Organization of the human body
Lecture 3	L3	The human cell
Lecture 4	L4	Cellular organelles
PBL 1	PBL 1	Introduction to PBL
PBL-SDL 1	PBL-SDL 1	Distribution of groups
Practical session 1	PS1	The human cells I
Practical session 2	PS2	The human cells II

Week Two		
Type of activity	Code	Title of activity
Lecture 1	L5	Introduction to tissues
Lecture 2	L6	Molecular building blocks
Lecture 3	L7	Body fluids
Lecture 4	L8	Transport across cell membranes
PBL 1	PBL 2	PBL - Case (1) - BS session (oedema)
PBL-SDL 1	PBL-SDL 2	PBL - Case (1) - group discussion
Practical session 1	PS3	Tissues I
Practical session 2	PS4	Tissues II

Week Three		
Type of activity	Code	Title of activity
Lecture 1	L9	Homeostasis
Lecture 2	L10	The control of body temperature
Lecture 3	L11	Surface epithelium
Lecture 4	L12	Glandular epithelium
PBL 1	PBL 3	PBL - Case (1) - RS session
PBL-SDL 1	PBL-SDL 3	PBL - Case (1) - Feedback & reflection
Practical session 1	PS5	Epithelial tissues
Practical session 2	PS6	Connective tissue proper

Week Four		
Type of activity	Code	Title of activity



Lecture 1	L13	Connective tissue
Lecture 2	L14	Connective tissue proper
Lecture 3	L15	Cartilage
Lecture 4	L16	Bone tissue
PBL 1	PBL 4	PBL - Case (2) - BS session (rickets)
PBL-SDL 1	PBL-SDL 4	PBL - Case (2) - group discussion
Practical session 1	PS7	Cartilage
Practical session 2	PS8	Bone tissue

<b>Week Five</b>		
Type of activity	Code	Title of activity
Lecture 1	L17	Endochondral Ossification
Lecture 2	L18	Intramembranous ossification
Lecture 3	L19	Muscular tissue
Lecture 4	L20	Nervous tissue
PBL 1	-	SDL
PBL-SDL 1	-	SDL
Practical session 1	-	Revision for midterm
Practical session 2	-	Midterm examination

<b>Week Six</b>		
Type of activity	Code	Title of activity
Lecture 1	L21	The microscopic structure of blood cells
Lecture 2	L22	Haemopoiesis
Lecture 3	L23	Terminology of anatomical plains
Lecture 4	L24	Terminology of body movements
PBL 1	PBL 5	PBL - Case (2) - RS session
PBL-SDL 1	PBL-SDL 5	PBL - Case (2) - Feedback & reflection
Practical session 1	PS11	Muscular tissue
Practical session 2	PS12	Nervous tissue

<b>Week Seven</b>		
Type of activity	Code	Title of activity
Lecture 1	L25	Systems of the human body
Lecture 2	L26	Outline of the cardiopulmonary system
Lecture 3	L27	Outline of the gastrointestinal system
Lecture 4	L28	Outline of the urogenital system
PBL 1	PBL 6	PBL - Case (3) - BS session
PBL-SDL 1	PBL-SDL 6	PBL - Case (3) - group discussion
Practical session 1	PS11	The cardiopulmonary system
Practical session 2	PS12	The gastrointestinal & urogenital systems

<b>Week Eight</b>		
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Type of activity	Code	Title of activity
Lecture 1	L29	Outline of the immune system
Lecture 2	L30	Outline of the endocrine system
Lecture 3	L31	The skin & integumentary system
Lecture 4	L32	Outline of the nervous system
PBL 1	PBL 7	PBL - Case (3) - RS session
PBL-SDL 1	PBL-SDL 7	PBL - Case (3) - Feedback & reflection
Practical session 1	PS11	The endocrine system
Practical session 2	PS12	The nervous system

Week Nine		
Type of activity	Code	Title of activity
Lecture 1	L33	Introduction to the autonomic nervous system
Lecture 2	L34	Excitable tissues
Lecture 3	L35	The basal metabolic rate
Lecture 4	L36	Acid-base regulation
PBL 1	-	Revision
PBL-SDL 1	-	Revision
Practical session 1	PS11	Revision
Practical session 2	PS12	Revision

### Assessment strategy

Assessment of students will employ a battery of assessment tools that are fit-for-purpose and reliable. Knowledge will be assessed through MCQ-type written exam and computer-based spotter exam. These will be conducted at the middle of the block & at its end. In addition to the mid-block written exam, continuous assessment will be done through the evaluation of performance in PBL sessions and through assignments.

Schedule of assessment tasks for students during the course			
Assessment task		Week Due	% of Total Assessment
1	PBL evaluation	All weeks	10%
2	Midterm Exam	5 <sup>th</sup> Week	30%
3	Spotter exam/ OSPE	End of semester	20%
4	Final Written Exam	End of semester	40%

### Recommended reading

- Lowe & Peter Anderson Stevens & Lowe's Human Histology (Mosby, 2014)
- Guyton & Hall Textbook of Medical Physiology, 12<sup>th</sup> Edition, 2011
- Boron & Boulpaep, Medical Physiology, Updated Edition, International Edition, with STUDENT CONSULT Online Access, 2<sup>nd</sup> Edition (INTERNATIONAL EDITION), 2012
- Meisenberg & Simmons. Principles of Medical Biochemistry with STUDENT CONSULT Online Access, 3<sup>rd</sup> Edition 2012

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- Ganong's Review of Medical Physiology, 24e - Kim E. Barrett, Scott Boitano, Susan M. Barman, Heddwen L. Brooks

**Recommended electronic resources**

<http://histology.med.umich.edu/node/84>

<http://histology.med.umich.edu/schedule/medical>