

**Ministry of Higher Education and Scientific Research
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic
Accreditation Department**



Academic Program and Course Description Guide

2nd stage Physiology 2025-2026

Academic Program Description Form

University Name: University of Al-Qadisiyah

Faculty/Institute: College of medicine

Scientific Department:

Academic or Professional Program Name: General Medicine and Surgery

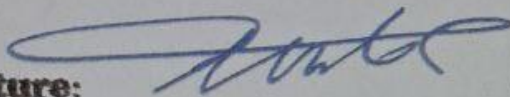
Final Certificate Name: Bachelor's degree in General Medicine and Surgery

Academic System: Annual year / 2 semester

Description Preparation Date: 10/9 /2025

File Completion Date: 16/9/2025

Signature:



Head of Department Name:

Prof Dr. Nael Mohammed

Signature:



Scientific Associate Name:


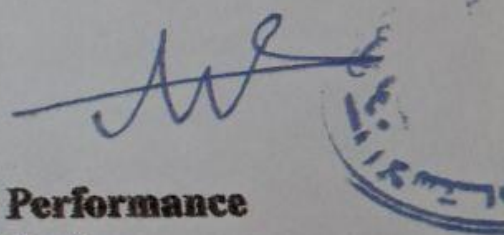
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The file is checked by: Prof Dr. Anwar jassib

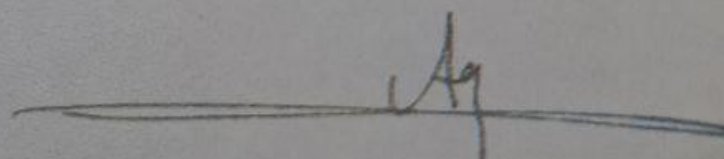
**Department of Quality Assurance and University Performance
Director of the Quality Assurance and University Performance**

Department:

Signature:



Approval of the Dean



1. Program Vision

Seeking to make the College of Medicine in Al-Qadisiyah University a distinguished college among the medical colleges in Iraq in the field of medical education. Additionally, to make it has a clear imprint in promoting the health field in the Iraqi community and works to provide distinctive proposals and views for basic and clinical medical sciences to ensure meeting the health needs of the community at the local and national levels..

2. Program Mission

Al Qadisiyah medical college aims at producing medical doctors that are able to participate effectively in the health care delivery system whether in Iraq or any other country

The curriculum is designed to provide students with the necessary knowledge, skills and attitudes in order to function as safe doctors and have the baseline for lifelong learning in the medical field in the future

The teaching methods are guided by learning objectives that ensure delivering basic biomedical, behavioral and social and clinical subjects which help creating an efficient junior doctor who is competent, motivated and professional.

It is a well-established strategy that students are heard and welcomed to provide feedback about different aspects of the learning process and they are considered as an essential part in the decision making in the college used for continuous planning for improvement of the whole institution.

3. Program Objectives

Graduating distinguished doctors and rehabilitating them scientifically, professionally and ethically so that they can provide health and medical care to individuals, families and society on sound scientific bases and in accordance with the noble moral, social and humanitarian values with great interest in primary health care

- Developing curricula, teaching aids and methods to improve quality based on international quality standards and academic accreditation

- Achieving accreditation through the institutional capacity standards of the college. Achieving academic accreditation standards for student and graduate programs offered by the college

Continuous support for distinguished cadres of faculty members through an academic environment that encourages production and creativity

θ Continuous development of the scientific research system to identify and diagnose major health problems in the community, propose appropriate scientific solutions to them, and keep pace with development in basic and clinical medical sciences.

4. Program Accreditation
An application has been made for national accreditation for medical colleges

5. Other external influences
Advances in medical science and technology , requiring regular curriculum updates

6. Program Structure				
Program Structure	Number of semester	Credit hours total	Percentage	Reviews*
Institution Requirements	2	Total hour in annual year semester I and II 180h (120 h theory and 60h practical)		Basic
College Requirements	2	Total hour in annual year semester I and II 180h (120 h theory and 60h practical)		Basic
Department Requirements	2	Total hour in annual year semester I and II 180h (120 h theory and 60h practical)		Basic
Summer Training	Not found			
Other	Basic course			

* This can include notes whether the course is basic or optional.

1. Program Description				
Year/Level	Course Code	Course Name	Credit Hours	
2nd year	PHY 2201	Physiology	theoretical	practical
			120 Hours of theory in annual year semester I,II	60 h of practical in annual year semester I,II

Course Description Form

1. Course Name:
Physiology
2. Course Code:
PHY 2201
3. Semester / Year:
Annual year 2 semester for 2 nd stage
4. Description Preparation Date:
10/9/2025
5. Available Attendance Forms:
Official working hours
6. Number of Credit Hours (Total) / Number of Units (Total)
180 h for annual year semester I,II (120 h theory and 60 h practical) / 10unit total
7. Course administrator's name (mention all, if more than one name)
Name: Email:

7. Teaching and Learning Strategies

- The method of lecture and the use of the smart board
 - Readings, self-learning, panel discussions.
 - Exercises and activities in the classroom.
 - Guide students to some websites to benefit from them to develop abilities.
- Ask the students a set of thinking questions during the lectures such as what, how, when and why

8. Evaluation methods

-Theory

. Written Examination

-. Oral Examination

- practical

- Small group examination with activities

1. Faculty						
Faculty Members						
Academic Rank	Specialization		Special Requirements/Skills (if applicable)		Number of the teaching staff	
	General	Special			Staff	Lecturer
Professor	MBCHB	Physiology			1	
Professor	BS.C	Physiology			1	
Professor	BS.C	Physiology			1	

Professional Development

Mentoring new faculty members

processes and activities designed to enhance the professional knowledge, skills, and attitudes of educators so that they might, in turn, improve the learning of students.

Professional development of faculty members

creating or sustaining a culture of teaching excellence; advancing new initiatives in teaching and learning; and supporting individual faculty members' goals for professional development.

9. Acceptance Criterion

According to the student's central acceptance rate

University Of Al-Qadisiyah
collage of of Medicine
Department of Physiology
2nd academic year of M.B. B.Ch. program

Course Specifications

Course Title: Physiology for the 2nd year students

Code: PHY 2201

A) Basic Information:

Allocated marks: 100 marks.

Course duration 30 weeks

Teaching hours for each group: 180 hours

Attendance Policy

Student attendance is obligatory, they are required by university regulations to be present during the daytime from 8:00 a.m. to 2:30 P.m. This means that you are required to attend all:

- **Teaching sessions**
- **Formative assessment and review sessions**

Students who fail to attend for any reason are instructed to notify the secretary and give the reason why he/she was unable to attend.

Failure of students to attend (unauthorized absence) for 10% of total weeks is subjected to disciplinary actions (from alarming him till review with MEU committee/head/deputy dean and if absence reaches 15% the student is subjected to further disciplinary action. This ranges from a meeting with the year coordinator to (in the worst cases) referral to the deanery with a view to expulsion.

Professional Information:

1. Program Aims

- To provide the students with basic knowledge of normal physiology of the body system as well as some of the pathophysiology.
- To enable students to provide a basic understanding of the diseases related to physiology
 - To integrate physiological data & mechanisms with the ongoing basic sciences: anatomy histology & biochemistry and clinical applications.

- To follow the rapidly changing and inflating details of molecular biology & genetics.
- To provide students with appropriate knowledge and skills needed for diagnosing diseases.
- To provide the students with appropriate professional communication and problem-solving skills.
- To enable the students to acquire lifelong learning competencies necessary for continuous professional development.

2. Academic Standards

The Intended Learning Outcomes (ILO's) of the present program are developed to satisfy the National Academic Reference Standards (NARS) for Bachelor's degree of Medicine published by the National Authority for Quality Assurance and Accreditation of Education.

3. Intended Learning Outcome

Knowledge and Understanding

By the end of the course, students should be able to:

- 1- Describe the cellular functions at the organelle and molecular level.
- 2- Classify the functional organization of sympathetic and parasympathetic nervous systems.
- 3- Point out the basis of excitability (membrane potentials) in all living cells especially in nerve and muscle cells.
- 4- Explain the functions of the nerve cell and muscle fiber grossl and at the molecular level.
- 5- point out and explain the functions of different components of blood.
- 6- describe the structure, properties, and functions of cardiac muscle grossly and at the molecular level.
- 7- point out the dynamics of blood and lymph flow and describe physiology of circulation through special organs.
- 8- describe the physiology of pulmonary ventilation, exchange of gases in the lung, and blood gas transport.
- 9- point out the physiology of regulation of respiration in health and disease states.

10 - Point out the functional anatomy of the kidney, physiology of glomerular filtration, renal tubular function, and micturition.

11 - Discuss the regulation of extracellular fluid composition and volume.

12 - Describe some biophysical laws and their relation to human physiology

Practical Skills

By the end of the course, students should be able to:

1- Perform hematological tests: estimation of blood Hb, bleeding & clotting times, determination of the hematocrit value, the bleeding & clotting times, and blood groups.

2- Perform the most important respiratory function tests.

3- Measure the arterial blood pressure.

4- Manipulate a stethoscope hearing heart and respiratory sounds.

5- Record and read an electrocardiogram.

6- Perform the most important renal function tests.

7- Perform clinical methods

4. Program Structure and Contents:-

a. Course contents:

* **Introduction to nervous tissue**

* **Signal transmission at synapses**

* **Neurotransmitters**

* **Spinal cord physiology: sensory & motor tracts**

* **Blood-brain barrier, CSF**

* **Somatic sensation**

* **Special sense physiology**

* **Physiology of vision**

* **Functional anatomy of the ear: impedance matching**

* **Physiology of taste & smell**

* **Excitable tissues**

* **Neuromuscular junction (Excitation-contraction coupling)**

*** Introduction to endocrinology**

* Hypothalamus

And pituitary gland

* **Thyroid gland**

* **Adrenal gland**

* **Insulin and glucagon Diabetes mellitus**

* **Insulin and glucagon Diabetes mellitus**

* **Calcium and phosphate homeostasis**

* **CVS**

Physiology of heart : cardiac structures

* **Cardiac conduction & properties**

* **ECG**

* **ECG parts**

* **Regulation of heart rate**

* **Neural control of circulation**

* **Regulation of blood flow & blood pressure**

* **Special features of circulation in skeletal m. & skin**

* **Introduction to respiratory system**

* **Composition of respired air: pulmonary ventilation**

* **Exchange of gases in the lungs**

* **Pulmonary circulation**

* **Pulmonary edema. Plural fluid**

* **Regulation of Respiration**

* **Physiology of blood: introduction Functions of plasma proteins**

* **Principles of hemopoiesis**

* **Regulation of erythropoiesis**

* **Blood groups**

regulation of GI function, functional types of movement of GIT

* **Composition of saliva**

Regulation of salivary secretion

* **Stomach**

regulation of gastric secretion

stimulation of acid secretion

* **Digestion of various food : hydrolysis**

Digestion of CHO

- * **Physiology of renal system**
- Renal hemodynamics and glomerular filtration**
- * **Physiological basis of renal function tests**
- * **Mechanism of reabsorption and secretion**
- * **Acid-base balance**
- * **Male reproductive physiology**
- * **Female reproductive physiology**
- * **Hypothalamic – pituitary-gonadal axis**

5- The timetable of topics of the 1st semester :

Week	No. of lecture	Topics Covered	Objectives
1	1	Introduction to nervous tissue	<ul style="list-style-type: none"> • Describe the organization of the nervous system. • Describe the three basic functions of the nervous system.
1	2	Electrical signals in neurons ;resting membrane potential, generation of A.P,propagation of AP	<ul style="list-style-type: none"> Describe the cellular properties that permit communication among neurons and effectors. • Compare the basic types of ion channels, and explain how they relate to graded potentials and action potentials. • Describe the factors that maintain a resting membrane potential. • List the events that generate an action potential.
1	3	Signal transmission at synapses	<ul style="list-style-type: none"> • Explain the events of signal transmission at electrical and chemical synapses. • Distinguish between spatial and temporal summation. • Give examples of excitatory and inhibitory neurotransmitters, and describe how they act.
1	4	Neurotransmitters	Classes &function of Neurotransmitters
2	5	Spinal cord physiology: sensory & motor tracts	<ul style="list-style-type: none"> • Describe the functions of the major sensory and motor tracts of the spinal cord.
2	6	Reflexes& reflex arc	<ul style="list-style-type: none"> • Describe the functional components of a reflex arc and the ways reflexes maintain homeostasis.
2	7	Brain & cranial nerves	<ul style="list-style-type: none"> • Identify the major parts of the brain. • Describe how the brain is protected. • Describe the blood supply of the brain.
2	8	Blood brain barrier, CSF	<ul style="list-style-type: none"> • Explain the formation and circulation of cerebrospinal fluid.

3	9	Brain stem & reticular formation	• Describe the structures and functions of the brain stem and reticular formation.
3	10	Cerebellum ,thalamus ,hypothalamus	Describe the structure and functions of the cerebellum. Describe the components and functions of the diencephalon (thalamus, hypothalamus, and epithalamus)

3	11	Cerebral cortex , basal nuclei	<ul style="list-style-type: none"> • Describe the cortex, gyri, fissures, and sulci of the cerebrum. • Locate each of the lobes of the cerebrum. • Describe the tracts that compose the cerebral white matter. • Describe the nuclei that compose the basal nuclei
3	12	Limbic system	<ul style="list-style-type: none"> • Describe the structures and functions of the limbic system.
4	13	ANS : comparison of somatic & ANS	Compare the structural and functional differences between the somatic and autonomic parts of the nervous system.
4	14	Sympathetic & parasympathetic responses	Describe the major responses of the body to stimulation by the sympathetic and parasympathetic divisions of the ANS.
4	15	ANS Neurotransmitters & receptors	<p>Describe the neurotransmitters and receptors involved in autonomic responses.</p> <p>Describe the major responses of the body to stimulation by the sympathetic and parasympathetic divisions of the ANS</p>
4	16	Somatic sensation	<ul style="list-style-type: none"> • Describe the location and function of the somatic sensory receptors for tactile, thermal, and pain sensations. • Identify the receptors for proprioception and describe their functions.
5	17	Somatic sensory P.W	Describe the neuronal components and functions of the posterior column–medial lemniscus pathway, the anterolateral pathway, and the spinocerebellar pathway.
5	18	Somatic motor P.W	<ul style="list-style-type: none"> • Identify the locations and functions of the different types of neurons in the somatic motor pathways. • Compare the locations and functions of the direct and indirect motor pathways. • Explain how the basal nuclei and cerebellum contribute to movements
5	19	Special sense	

		physiology anatomy of eye ball	identify each of the accessory structures of the eye and the structural components of the eyeball.
5	20	Physiology of vision	<ul style="list-style-type: none"> • Discuss image formation by describing refraction, accommodation, and constriction of the pupil.
6	21	Visual P.W.	<ul style="list-style-type: none"> • <i>Describe the processing of visual signals in the retina and the neural pathway for vision</i>
6	22	Functions of retina: photoreception	Photoreceptors and Photopigments
6	23	Error of refraction	Describe myopia, hypermetropia, astigmatism
6	24	Functional anatomy of ear: impedance matching	Describe the anatomy of the structures in the three main regions of the ear.
7	25	Organ of Corti: peripheral auditory mechanism	Explain the function of each of the receptor organs for equilibrium.
7	26	Auditory pathway, physiology of hearing	<ul style="list-style-type: none"> • List the major events in the physiology of hearing.
7	27	Physiology of equilibrium	<ul style="list-style-type: none"> • Describe the auditory and equilibrium pathways
7	28	Physiology of taste & smell	<ul style="list-style-type: none"> • Describe the structure of the olfactory receptors and other cells involved in olfaction. • Outline the neural pathway for olfaction. Describe the structure of the gustatory receptors and the neural pathway for gustation.
8	29	Introduction to endocrinology	Compare control of body functions by the nervous system and endocrine system.
8	30	Endocrine gland	Distinguish between exocrine and endocrine glands.
8	31	Hormone activity	Describe how hormones interact with target-cell receptors. <ul style="list-style-type: none"> • Compare the two chemical classes of hormones based on their solubility..
8	32	Mechanism of action	Describe the two general mechanisms of hormone action. <ul style="list-style-type: none"> • Describe the mechanisms of control of hormone secretion.
9	33	Hypothalamus And pituitary gland	Describe the locations of and relationships between the hypothalamus and pituitary gland. <ul style="list-style-type: none"> • Describe the location, histology, hormones, and functions of the anterior and posterior pituitary.
9	34	Anterior pituitary	<ul style="list-style-type: none"> • Control if secretion of ant. Pituitary

		gland	<ul style="list-style-type: none"> • Solve problems concerning hypothalamic–anterior pituitary axis • Solve problems concerning disorders of the hypothalamic–anterior pituitary axis
	35	Posterior pituitary gland	<ul style="list-style-type: none"> • Answer questions about hormones of the posterior pituitary • Explain information related to regulation of ECF volume and osmolarity • Answer questions about pathophysiologic changes in ADH secretion • Use knowledge of hyponatremia
	36	Thyroid gland	<ul style="list-style-type: none"> • Solve problems concerning overview of the thyroid gland • Use knowledge of biosynthesis and transport of thyroid hormones <p>Interpret scenarios on physiologic actions of thyroid hormones</p> <p>.. Answer questions about control of thyroid hormone secretion</p> <p>.. Answer questions about pathologic changes in thyroid hormone secretion</p>
10	37	Adrenal gland	<p>.. Use knowledge of functional regions of the adrenal gland</p> <p>.. Demonstrate understanding of biosynthetic pathways of steroid hormone synthesis</p> <p>.. Interpret scenarios on physiologic actions of glucocorticoids</p> <p>.. Solve problems concerning control of adrenocorticotropin and cortisol secretion</p> <p>.. Demonstrate understanding of physiologic actions of aldosterone</p> <p>.. Explain information related to control of aldosterone secretion</p> <p>.. Explain information related to glucocorticoid disorders</p> <p>.. Explain information related to mineralocorticoid disorders</p> <p>.. Explain information related to enzyme deficiencies</p> <p>Answer questions about hormones of the adrenal medulla</p> <p>.. Demonstrate understanding of major metabolic actions of epinephrine</p> <p>.. Interpret scenarios on pheochromocytomas</p>
	38	Insulin and glucagon	<p>. Use knowledge of hormones of the islets of</p>

		Diabetes mellitus	Langerhans .. Use knowledge of actions of insulin .. Use knowledge of control of insulin secretion .. Explain information related to actions of glucagon .. Answer questions about control of glucagon secretion .. Use knowledge of diabetes mellitus .. Answer questions about pancreatic endocrine-secreting tumors
	39	Parathyroid gland Calcitonin hormone	.. Solve problems concerning parathyroid hormone .. Solve problems concerning calcitonin
	40	Calcium and phosphate homeostasis	Solve problems concerning overview of calcium and phosphate .. Solve problems concerning bone remodeling .. Demonstrate understanding of role of vitamin D (calcitriol) in calcium homeostasis .. Solve problems concerning disorders in calcium and phosphate .. Answer questions about metabolic bone disorder
11	41	CVS Physiology of heart : cardiac stracturs	CV 1. Contrast the duration of the action potential and the refractory period in a cardiac muscle, a skeletal muscle, and a nerve. Sketch the temporal relationship between an action potential in a cardiac muscle cell and the resulting contraction (twitch) of that cell. On the basis of that graph, explain why cardiac muscle cannot remain in a state of sustained (tetanic) contraction. CV 2. State the steps in excitation-contraction coupling in cardiac muscle. Outline the sequence of events that occurs between the initiation of an action potential in a cardiac muscle cell and the resulting contraction and then relaxation of that cell. Provide specific details about the special role of Ca ²⁺ in the control of contraction and relaxation of cardiac muscle. CV 3. Compare cardiac and skeletal muscle with respect to: cell size, electrical connections between cells, and arrangement of myofilaments. Based on ion permeability and

			<p>electrical resistance describe role of gap junctions in creating a functional syncytium.</p> <p>CV 4. Identify the role of extracellular calcium in cardiac muscle contraction. Identify other sources of calcium that mediate excitation-contraction coupling, and describe how intracellular calcium concentration modulates the strength of cardiac muscle contraction.</p> <p>CV 5. Describe the role of Starling's Law of the Heart in keeping the output of the left and right ventricles equal.</p> <p>CV 6. Describe the difference in the way changes in preload and changes in contractility influence ventricular force development. Compare the energetic consequences of these two separate mechanisms of force modulation.</p>
	42	Cardiac conduction & properties	
	43	Ventricular AP	
	44	Phases of excitation	
12	45	Mechanical properties	
	46		

2nd semester Lectures

We eks	N0. Of lecture	Topics Covered	Objectives
1	1	Introduction to respiratory system	. Answer questions about overview of the respiratory system
1	2	Mechanics of respiration	. Interpret scenarios on lung volumes and capacities
1	3	Composition of respired air: pulmonary ventilation	. Solve problems concerning ventilation . Use knowledge of lung mechanics . Answer questions about cardiovascular changes with ventilation . Solve problems concerning positive-pressure ventilation . Answer questions about pneumothorax . Use knowledge of lung compliance . Interpret scenarios on airway resistance

			<ul style="list-style-type: none"> . Explain information related to pulmonary function testing
1	4	Exchange of gases in the lungs	<ul style="list-style-type: none"> . Answer questions about the normal lung . Solve problems concerning factors affecting alveolar PCO₂ . Use knowledge of factors affecting alveolar PO₂ . Interpret scenarios on alveolar-blood gas transfer: Fick law of diffusion . Use knowledge of diffusing capacity of the lung
2	5	Ventilation – perfusion ratio	<ul style="list-style-type: none"> . Demonstrate understanding of ventilation-perfusion differences in the lung . Demonstrate understanding of review of the normal lung . Answer questions about causes of hypoxemia . Use knowledge of left-to-right shunts
2	6	Pulmonary circulation	<ul style="list-style-type: none"> Contrast the systemic and pulmonary circulations with respect to pressures, resistance to blood flow, and response to hypoxia. . Describe the regional differences in pulmonary blood flow in an upright person. Define zones I, II, and III in the lung, with respect to pulmonary vascular pressure and alveolar pressure. . Describe how pulmonary vascular resistance changes with alterations in cardiac output or pulmonary arterial pressure. Explain in terms of distention and recruitment of pulmonary vessels. Identify the zones in which these two mechanisms apply. . Describe how pulmonary vascular resistance changes with lung volume. Explain in terms of alterations in alveolar and extra-alveolar blood vessels. . Describe the consequence of hypoxic pulmonary vasoconstriction on the distribution of pulmonary blood flow. . Describe the effects of inspired nitric oxide on pulmonary vascular
2	7	Pulmonary circulation	

			<p>resistance and hypoxic vasoconstriction. Explain the development of pulmonary edema by a) increased hydrostatic pressure, b) increased permeability, c) impaired lymphatic outflow or increased central venous pressure, and d) hemodilution (e.g., with saline volume resuscitation).</p> <p>. Describe the major functions of the bronchial circulation.</p>
2	8	Pulmonary edema. Plural fluid	
3	9	Revision	
3	10	Regulation of Respiration	<p>. Identify the regions in the central nervous system that play important roles in the generation and control of cyclic breathing.</p> <p>. Give three examples of reflexes involving pulmonary receptors that influence breathing frequency and tidal volume.</p>
3	11	Respiratory Insufficiency Pathophysiology, Diagnosis, Oxygen Therapy	<p>Describe the receptors and neural pathways involved.</p> <p>. List the anatomical locations of chemoreceptors sensitive to changes in arterial PO₂, PCO₂, and pH that participate in the control of ventilation. Identify the relative importance of each in sensing alterations in blood gases.</p> <p>. Describe how changes in arterial PO₂ and PCO₂ alter alveolar ventilation, including the synergistic effects when PO₂ and PCO₂ both change.</p> <p>. Describe the respiratory drive in a COPD patient, and predict the change in respiratory drive when oxygen is given to a COPD patient.</p> <p>. Describe the mechanisms for the shift in alveolar ventilation that occur immediately upon ascent to high altitude, after remaining at altitude for two weeks, and immediately upon return to sea level.</p>
3	12	Respiratory Insufficiency Pathophysiology, Diagnosis, Oxygen Therapy	

4	13	Physiology of blood : introduction Functions of plasma proteins	<p>Explain the functions of blood.</p> <ul style="list-style-type: none"> • Describe the physical characteristics and principal <p>1-components of blood</p> <p>2- the structure, functions, life cycle, and production of red blood cells</p> <p>3- the structure, functions, life cycle, and production of white blood cells.</p> <p>4- the structure, function, and origin of platelets.</p> <p>5- the three mechanisms that contribute to hemostasis.</p> <p>- Explain the various factors that promote and inhibit blood clotting.</p> <p>6- Distinguish between the ABO and Rh blood groups.</p> <p>- Explain why it is so important to match donor and recipient blood types before administering a transfusion</p>
4	14	Principles of hemopoiesis	
4	15	Regulation of erythropoiesis	
4	16	.Destruction of red cells: Jaundice	
5	17	Anemia& polycythemia	
5	18	Regulation of WBC production	
5	19	Functions of WBC	
5	20	Functions of platelets	
6	21	Hemostasis	
6	22	.Blood groups	
6	23	regulation of GI function, functional types of movement of GIT	
6	24	Digestion : types of digestion Salivary gland	
7	25	Composition of saliva Regulation of salivary secretion	
7	26	Swallowing, Esophagus	
7	27	Stomach regulation of gastric secretion stimulation of acid secretion	
7	28	Digestion of various food : hydrolysis Digestion of CHO	
8	29	Digestion of proteins Digestion of fat	
8	30	Absorption of water & ions Absorption of nutrients	
8	31	Absorption of fat	
8	32	Pancreatic secretion Secretin of HCO ₃	
9	33	Regulation of pancreatic secretion	
9	34	Small intestinal secretion Large intestinal secretion	
	35	Secretion of bile by liver Action & storage of bile , stone formation	
	36	Exam	

	37	Physiology of renal system Renal hemodynamics and glomerular filtration	<ul style="list-style-type: none"> . Use knowledge of overview of the renal system . Demonstrate understanding of nephron hemodynamics
10	38	Renal tubular function	<ul style="list-style-type: none"> . Demonstrate understanding of glomerular filtration
	39	Regulation of renal function	
	40	Physiological basis of renal function tests	<ul style="list-style-type: none"> . Interpret scenarios on solute transport
	41	Mechanism of reabsorption and secretion	<ul style="list-style-type: none"> . Interpret scenarios on quantifying renal processes (mass balance)
	42	Micturition	<ul style="list-style-type: none"> . Demonstrate understanding of clearance
11	43	Acid base balance	<ul style="list-style-type: none"> . Answer questions about t_m tubular reabsorption . Solve problems concerning t_m tubular secretion . Use knowledge of the renal handling of some important solutes . Use knowledge of clearance as an estimator of GFR . Demonstrate understanding of clearance curves for some characteristic substances . Solve problems concerning free water clearance . Use knowledge of sodium and urea clearance . Interpret scenarios on buffering systems . Explain information related to formulating a diagnosis . Explain information related to 3-question method . Solve problems concerning the 4 primary disturbances . Use knowledge of compensation . Solve problems concerning plasma anion gap diagnosis . Use knowledge of graphical representation (Davenport plot) . Solve problems concerning supplemental information
	44	Introduction to reproductive system	<ul style="list-style-type: none"> . Solve problems concerning hypothalamic-pituitary-gonadal axis in males . Solve problems concerning age-related hormonal changes in males . Demonstrate understanding of erection, emission, and ejaculation . Use knowledge of gonadal
	45	Male reproductive physiology	
	46	male reproductive physiology	

			dysfunction in the male
12	47	Female reproductive physiology	Interpret scenarios on menstrual cycle . Explain information related to female sex steroid metabolism and excretion . Answer questions about menstrual irregularities . Explain information related to pregnancy . Solve problems concerning lactation
	48	Female reproductive physiology s	
	49	Hypothalamic – pituitary – gonadal axis	
	50	Puberty	
13	51	Pregnancy	
	52	Parturition and lactation	
	53	Reproductive ageing	

Small group & Practical physiology

Time - Group	Subject	objectives
1 st week - B C D A E F	Neurophysiology Conduction of A.P Case M.S EBM	<ol style="list-style-type: none"> 1. How is the action potential propagated in nerves (such as sensory nerves of the visual system)? 2. What is a length constant, and what factors increase it? 3. Why is it said that action potentials propagate “nondecrementally?” 4. What is the effect of nerve diameter on conduction velocity, and why? 5. What is the effect of myelination on conduction velocity, and why? 6. In myelinated nerves, why must there be periodic breaks in the myelin sheath (nodes of Ranvier)?

8 rd week	referred pain
9 th week	Snellen chart ? Visual field examination & pupillary reflex
10 th	Hearing test
11 th	CVS
12 th	CVS
13 th	CVS
14 th	CVS
15 th	Cvs
16 th	CVS
17 th	Hematology
18 th	RBC count
19 th	WBC count
20 th	Diff. WBCC
21	Hb%
22	Bleeding time & clotting time
23 rd	Blood group
24 th	Renal system
25 th	Renal physiology
26 th	Renal physiology
27 th	Renal physiology

28	GIT.
29	
30	

PBL

Time – GP.	PBL	Objectives
1 st week - 2 nd week - 3 rd week- 4 th week-	Brown squared syndrome	1- What are the two ascending sensory pathways, and what information does each convey? 2- What are the two anatomic divisions of the dorsal columns, and from which anatomic structures do these respective divisions relay sensory information? 3- At what neuroanatomic locations do projections in the corticospinal tract, dorsal columns, and anterolateral system (spinothalamic system) cross over? 4- Because you know where the major motor and sensory pathways cross over, identify and explain the neurologic deficits that occur in the Brown-Séquad syndrome
5 week – 6 th week - 7 th week- 8 th week-	- Visual P.W. lesions - Refraction error	Where is the cranial lesion that results in bitemporal hemianopia? - What type of lens is necessary to correct myopia? - Why does a deficiency of vitamin A result in night blindness?
9 th week – 10 week – 11 week- 12 week-	Thalassemia	- What is the function of hemoglobin? What are the three main types of hemoglobin found within normal adult red blood cells? - pathophysiologic mechanisms resulting in anemia?
13 week - 14 week - 15 week- 16 th week-	Bleeding disorder Hemophilia - DIC -	1- Differentiate between the processes of primary and secondary hemostasis. 2- What information can be provided by measuring the prothrombin time and activated partial thromboplastin time?
17 week - 18 week - 19 th week-	Intrabdominal hemorrhage	1- What is the response of the juxtaglomerular cells to decreased extracellular fluid and arterial pressure? - 2 What are two effects of angiotensin II? 3- What are two mechanism by which autoregulation of renal blood flow

20 ¹ week-		occurs?
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Program Skills Outline

21 week - 22 week - 23 week- 24 week-	Glucose urea in pregnancy	<ol style="list-style-type: none"> 1- Where in the renal glomerulus-tubule structure is glucose reabsorbed actively (secondary active transport)? 2- What other solutes are reabsorbed by a secondary active process? 3- With what is glucose cotransported in the proximal tubule?
25week - 26 week - 27 week-	Gall stone	<ol style="list-style-type: none"> 1- Why would fatty foods aggravate the patient's RUQ pain? 2- What effect does cholecystokinin (CCK) have on gastric emptying? 3-Why does CCK have some gastrin-like properties
28 week-	Achalasia	<ul style="list-style-type: none"> -What part of the gastrointestinal (GI) tract is composed of striated muscle and smooth muscle? -What factors are responsible for the tonic contraction of the lower esophageal sphincter (LES) between swallows? -What are the major neurotransmitters responsible for regulating contraction and relaxation of the LES

Assessment methods:

A) Assessment criteria:

According to the undergraduate Faculty bylaws, the students should attend 75% of the total hrs as a prerequisite to attend any of the allocated exams.

				Required program Learning outcomes									
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics	
				A1	A2	A3	A4	B1	B2	B3	B4	C1	
2 nd year	PHY 2201	physiology	Basic	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

6- Learning resources:

- 1- Guyton and Hall Textbook of Medical Physiology 14th edition
- 2- Guyton and Hall Physiology Review 4th edition
- 3- Ganong's Review of Medical Physiology 25th edition

Examinations description:

Examination	Description
1-Continuous progress test (CPT)	oral examination / spot diagnosis , quizzes , PBL ,Short answered questions, and skills assessment , log book activity , Case report ,homework activity
2- Mid theory exam for each semester	Short answered questions, M.C.Qs. and case presentation with short answer and matching according bloom and blue print
3- Half year theory exam	M.C.Qs. as case sinario or direct question , according bloom and blue print
4-Final year theory exam	M.C.Qs. as case sinario or direct question , according bloom and blue print
5- Final Practical exam for semester I,II	Spot slide diagnosis , prescription writing, M.C.Q , according bloom and blue print

The minimum passing grades (Faculty bylaws) is 50 marks.

Re-sit Examinations :- Students who fail in a in the annual year assessment will be required to re-sit (second sitting) the Final examination (theory and practical exam) .