



Gyanmanjari
Innovative University

Course Syllabus
Gyanmanjari Pharmacy College
Semester-2(B.Pharm.)

Subject: Human Anatomy and Physiology-II (BPHBP12305)

Type of course: Major

Prerequisite: Basic Biology and Anatomy and Physiology-I

Rationale: Anatomy and Physiology provide basic knowledge about the human body. It helps in clearing the fundamental concepts as to how our bodies function. With the help of the classes of anatomy and physiology, one gets to learn not only the theoretical concepts but practical functionalities of the human body too.

Teaching and Examination Scheme:

Teaching Scheme			Credits	Examination Marks				Total Marks
CI	T	P		Theory Marks		Practical Marks	CA	
			ESE	MSE	VP	ALA		
3	1	4	6	75	25	35	15	150

Legends: CI-Class Room Instructions; T – Tutorial; P - Practical; C – Credit; ESE - End Semester Examination; MSE- Mid Semester Examination; V – Viva; CA - Continuous Assessment; ALA- Active Learning Activities.

Course Content:

Chapter No.	Course content	Hrs	% Weightage
1.	<p>Nervous system:</p> <ul style="list-style-type: none"> • Autonomic Nervous System: Organization of nervous system, neuron, neuralgia, classification and properties of nerve fibre, electrophysiology, action potential, nerve impulse, receptors, synapse, neurotransmitters. • Central nervous system: Meninges, ventricles of brain and cerebrospinal fluid structure and functions of brain (cerebrum, brain stem, cerebellum), spinal cord (gross structure, functions of afferent and efferent nerve tracts, reflex activity) 	10	22



2.	<ul style="list-style-type: none"> • Digestive system: Gross anatomy of the gastro-intestinal tract, functions of its different parts including those of liver, pancreas and gall bladder, various gastrointestinal secretions and their role in the absorption and digestion of food(Acid production in the stomach, regulation of acid production through parasympathetic nervous system, pepsin role in protein digestion) small intestine and large intestine, anatomy and functions of salivary glands, movements of GIT, digestion and absorption of nutrients and disorders of GIT • Energetics: Formation and role of ATP, Creatinine Phosphate and BMR. 	8	18
3.	<ul style="list-style-type: none"> • Respiratory system: Anatomy of respiratory organs & its functions with special reference to anatomy of lungs, mechanism of respiration, regulation of respiration Lung Volumes and capacities transport of respiratory gases, artificial respiration, and resuscitation methods respiratory volumes and vital capacity. • Urinary system: Anatomy of urinary tract with special reference to anatomy of kidney and nephrons, functions of kidney and urinary tract, physiology of urine formation and acid-base balance. Micturition reflex, role of RAS in kidney. disorders of kidney 	9	20
4.	<ul style="list-style-type: none"> • Endocrine system: Classification of hormones, mechanism of hormone action, structure and functions of pituitary gland, thyroid gland, parathyroid gland, adrenal Gland, pancreas, pineal gland, thymus and their disorders. 	8	18
5.	<ul style="list-style-type: none"> • Reproductive system: Anatomy of male and female reproductive system, Functions of male and female reproductive system, sex hormones, physiology of menstruation, Sex differentiation, fertilization, spermatogenesis, oogenesis, Pregnancy its maintenance and parturition. • Introduction to genetics: Chromosomes, genes and DNA, protein synthesis, genetic pattern of inheritance 	10	22



Continuous Assessment:

(For each activity maximum-minimum range is 5 to 10 marks)

Sr. No	Active Learning Activities	Marks
1.	Quiz game: Quiz game is prepared and conduct by faculty and ask to students answer them and upload on portal.	5
2.	Drawing and labeling: For this activity faculty make group size of students and ask to make poster size colored image of any given organ with labelled and upload on portal.	10
Total		15

Suggested Specification table with Marks (Theory):75

Distribution of Theory Marks (Revised Bloom's Taxonomy)						
Level	Remembrance (R)	Understanding (U)	Application (A)	Analyze (N)	Evaluate (E)	Create (C)
Weightage	30%	40 %	20%	05%	05 %	

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Course Outcome:

After learning the course the students should be able to:	
CO1	Identify different organs consists Nervous systems and related organs.
CO2	Apply concepts and knowledge of the general terminology, cell structure physiology related to the digestive systems.
CO3	Use scientific laboratory equipment in order to gather and analyze data on human anatomy and physiology for respiratory and urinary systems
CO4	Understand and differentiate structure and function of the major endocrine organs.
CO5	Conceptualize anatomy of male and female reproductive system, functions of male and female reproductive system and sex hormones.



List of Practical

Practical physiology is complimentary to the theoretical discussions in physiology. Practicals allow the verification of physiological processes discussed in theory classes through experiments on living tissue, intact animals or normal human beings. This is helpful for developing an insight on the subject.

Sr. No	Descriptions	Unit No	Hrs
1.	To study the integumentary and special senses using specimen, models, etc.	1	4
2.	To study the nervous system using specimen, models, etc.,	1	4
3.	To study the endocrine system using specimen, models, etc	1	4
4.	To demonstrate the general neurological examination	1	4
5.	To demonstrate the function of olfactory nerve	1	4
6.	To examine the different types of taste.	2	4
7.	To demonstrate the visual acuity	2	4
8.	To demonstrate the reflex activity	3	4
9.	Determination of tidal volume and vital capacity	3	4
10.	Study of digestive, respiratory, urinary and reproductive systems with the help of models, charts and specimens	3	4
11.	Recording of basal mass index	3	4
12.	Recording of body temperature	4	4
13.	To demonstrate positive and negative feedback mechanism	4	4
14.	Study of family planning devices and pregnancy diagnosis test	5	4
15.	Permanent slides of vital organs and gonads	5	4
		Total	60



Instructional Method:

The course delivery method will depend upon the requirement of content and need of students. The teacher in addition to conventional teaching method by black board, may also use any of tools such as demonstration, role play, Quiz, brainstorming, MOOCs etc.

From the content 10% topics are suggested for flipped mode instruction.

Students will use supplementary resources such as online videos, NPTEL/SWAYAM videos, e-courses, Virtual Laboratory

The internal evaluation will be done on the basis of Active Learning Assignment

Practical/Viva examination will be conducted at the end of semester for evaluation of performance of students in laboratory.

Reference Books:

- [1] Essentials of Medical Physiology by K. Sembulingam and P. Sembulingam. Jaypee brothers medical publishers, New Delhi
- [2] Anatomy and Physiology in Health and Illness by Kathleen J.W. Wilson, Churchill Livingstone, New York
- [3] Physiological basis of Medical Practice-Best and Tailor. Williams & Wilkins Co, Riverview, MI USA
- [4] Text book of Medical Physiology- Arthur C, Guyton and John. E. Hall. Miamisburg, OH, U.S.A
- [5] Principles of Anatomy and Physiology by Tortora Grabowski. Palmetto, GA, U.S.A
Textbook of Human Histology by Inderbir Singh, Jaypee brothers medical publishers, New Delhi
- [6] Textbook of Practical Physiology by C.L. Ghai, Jaypee brothers medical publishers, New Delhi

