Chitkara College of Pharmacy
Chitkara University, Rajpura, Punjab
Chandigarh–Patiala National Highway, Punjab – 140 401, India

Institute/School Name	Chitkara College of Pharmacy		
Department Name	Chitkara College of Pharmacy		
Programme Name	B.Pharmacy		
Course Name	Remedial Biology	**Session**	July-Dec 25
Course Code	BP-106 RBT	**Semester/Batch**	1ST/2025
L-T (Per Week)	2-1	**Course Credits**	2
Pre-requisite	Basic understanding of plant and animal cell	**NHEQF Level**	5.5
Course Coordinator	Dr. Vandana Saini		
SDG	3,6		

Objectives of the Course:
Upon completion of the course, the student shall be able to know the classification and salient features of five kingdoms of life; understand the basic components of anatomy and physiology of plant; know understand the basic components of anatomy and physiology animal with special reference to humans.

Course Outcomes (COs)

Students should be able to:

	COs	**Program Outcomes (PO)**	**NHEQF Level Descriptor**	**No. of Lectures**
CO01	Understand and learn about cell biology, including the basic nature of plant and animal cells.	PO!, PO10	Q1	10
CO02	Classify plants and animals based on classification systems.	PO!, PO03, PO10	Q1	8
CO03	Explore various tissue and organ systems in plants and animals.	PO!, PO10	Q1, Q2	8
CO04	Understand the theory of evolution.	PO!, PO03, PO10, PO11	Q2	8
CO05	Learn the anatomy and physiology of plants and animals.	PO!, PO10	Q1	8
CO06	Study the various phases in the development of plant growth.	PO!, PO10	Q1	6
Total Contact Hours				40

CO-PO Mapping

CO	**PO1**	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**Type of Assessment's**
CO01	3									2		Summative/Formative
CO02	3		2							3		Summative/Formative
CO03	3									3		Summative/Formative

CO04	2		2							3	1	Summative/Formative
CO05	3									2		Summative/Formative
CO06	3									2		Summative/Formative

3=High, 2=Medium, 1=Low

Recommended Books:

B01: A Text book of Biology by Dr. Thulajappa and Dr. Sheetaram.
B02: Reference Books
B03: A Text book of Biology by B.V. Sreenivasa Naidu b. A Text book of Biology by Naidu and Murthy
B04: Botany for Degree students By A.C.Dutta.
B05: Outlines of Zoology by M. Ekambaranatha ayyer and T. N. Ananthakrishnan.
B06: A manual for pharmaceutical biology practical by S.B. Gokhale and C. K. Kokate

Other readings and relevant websites:

Serial No	Link of Journals, Magazines, websites and Research Papers
•	https://www.pharmaguideline.com/p/b-pharmacy-semester-ii.html

Recommended tools and platforms: ppt and classnotes
Lecture Plan

Lec no.	Topic	Book no, Ch no, page no.	TLM	ALM	Web References	Audio-video
1-5	**Living world:** Definition and characters of living organisms; Diversity in the living world; Binomial nomenclature; Five kingdoms of life and basis of classification. Salient feature, Protista, Fungi, Animalia and Plantae, Virus; Morphology of Flowering plants: Morphology of different parts of flowering plants – Root, stem, inflorescence, flower, leaf, fruit, seed; General Anatomy of Root, stem, leaf of monocotyledons and	B1, C 1, 2-12	Active Learning method	Case Study		
6-7	Body fluids and circulation: Composition of blood, blood groups, coagulation of blood, Composition and functions of lymph, Human circulatory system, Structure of	B1, C 1, 3-13.	discussion	Case study		

	human heart and blood vessels, Cardiac cycle, cardiac output and ECG.					
8-9	Excretory products and their elimination : Modes of excretion, Human excretory system structure and function, Urine formation, Rennin angiotensin system.	B1, C 1, 3-13.	active learning method	discussion		
9-10	Neural control and coordination : Definition and classification of nervous system, Structure of a neuron, Generation and conduction of nerve impulse, Structure of brain and spinal cord, Functions of cerebrum, cerebellum, hypothalamus and medulla oblongata	B1, C 1, 3-13.	lecture	discussion		
11,12	Chemical coordination and regulation: Endocrine glands and their secretions, Functions of hormones secreted by endocrine glands, Human reproduction, Parts of female reproductive system, Parts of male reproductive system, Spermatogenesis and Oogenesis, Menstrual cycle	B3,C2-15	reasoning	discussion		
13-15	**Neural control and coordination** : Definition and classification of nervous system, Structure of a neuron, Generation and conduction of nerve impulse, Structure of brain and spinal cord, Functions of cerebrum, cerebellum, hypothalamus and medulla oblongata	B3, C 1, 4-18	discussion			
16-17	**Chemical coordination and**	B1, C	discussion			

	regulation: Endocrine glands and their secretions, Functions of hormones secreted by endocrine glands, Human reproduction, Parts of female reproductive system, Parts of male reproductive system, Spermatogenesis and Oogenesis, Menstrual	1, 19-23				
18	**Plants and mineral nutrition:** Essential mineral, macro and micronutrients, Nitrogen metabolism, Nitrogen cycle, biological nitrogen fixation	B1, C 1, 19-23	learning			
19-20	**Chemical coordination and regulation:** Endocrine glands and their secretions, Functions of hormones secreted by endocrine glands, Human reproduction, Parts of female reproductive system, Parts of male reproductive system, Spermatogenesis and Oogenesis, Menstrual cycle	B1, C 1, 19-23	Lecture, Active learning			
21-40	**Plants and mineral nutrition:** Essential mineral, macro and micronutrients, Nitrogen metabolism, Nitrogen cycle, biological nitrogen fixation.	B1, C 1, 19-23	Lecture, Active learning			

Teacher in-charge Assistant Dean Dean