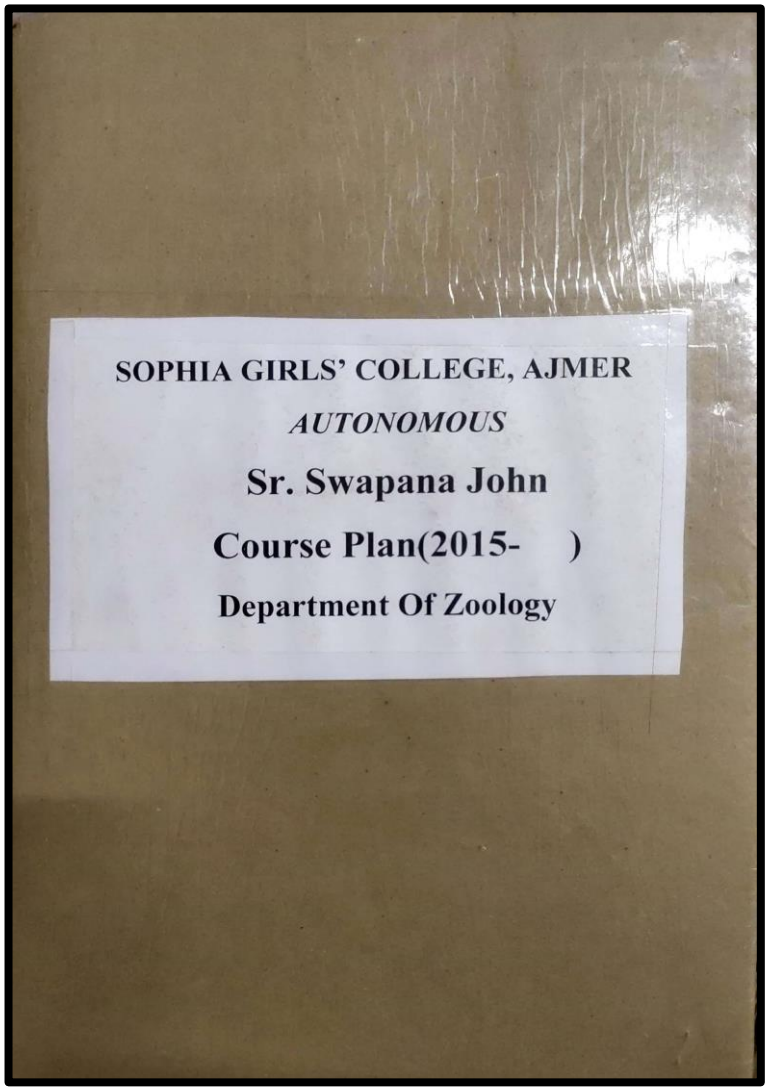
SOPHIA GIRLS' COLLEGE (AUTONOMOUS), AJMER



COURSE PLAN

U.G Programs

2019-20

SOPHIA GIRL'S COLLEGE, AJMER (*AUTONOMOUS*)

B.Sc. I (SEMESTER I) **ZOOLOGY (PAPER I) (ZOO-101)**

(Invertebrates: Classification and special features)

Max. Marks :75 (50Ext; 25 Int) Min. Marks: 30(20 Ext;10 Int) Credit: 03

COURSE PLAN

SEM I Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
SEM I JULY	UNIT I **Invertebrate classification**: salient features of various phyla and their classification upto Classes: Protozoa,Porifera,Colenterata,Aschelminthes,Platyhelminthes,Annelida,Arthropoda,Mollusca, Echinodermata. **General principles of taxonomy** - concept of the Five Kingdom	1.Basis of Classification.	PPT, Chart, Pictures, Google Classroom	1.classify Invertebrate phyla demonstrating its characters upto class 2.Concept on Parazoa, Metazoa. 3.Develop an idea of the special adaptationin Invertebrates	*Knowledge Based* -What is Five Kingdom Classification? -Illustrate five characters of the phylum Porifera. *Understanding Based*	Knowledge--60 Understanding-30 Higher Order-10

	scheme.				-Compare parazoa, metazoa -Classify the phylum Coelenterata and compare its classes giving example? *Higher Order Thinking Skills Based* -Justify the fact that special character follow the general character with reference to the various level of organization ?	
	Concept of Protozoa, Parazoa, Metazoa, Eumetazoa and levels of organization.	1. concept of Parazoa, metazoa and Eumetazoa	Lecture method Quiz, Demonstration			
	Basis of classification of non-chordata: Symmetry, coelom, segmentation and embryogeny.	Levels of organization in increasing order of complexity	Charts, Ppt, Guest lecture			
AUGUST	UNIT II **Protozoa**: Reproduction and Mode of locomotion:Cilia, Flagella and pseudopodia.	Asexual and sexual mode	Diagrams, Charts, Microscopic Slides	Illustrate the different forces acting over the earth		
	Porifera: Spicules: calcareous, silicious. Canal system: Ascon,	Development of Spicules and canal system	Diagrams, Charts,Test			

	Sycon and Leucon				-Critically Evaluate the concepts of Coelom giving example?	
	Coelenterata: Polymorphism, Corals and Coral reefs Platyhelminthes: Parasitic adaptations: Morphological and Physiological **Aschelminthes:** Life cycle with reference to Ascaris and its Economic Importance	Polymorphism and adaptations	Diagrams, Models, Demonstration, Videos			
SEPTEMBER-OCTOBER	UNIT III **Annelida:** Reproduction with reference to Earthworm. Locomotion:Setae and Parapodia **Arthropoda:** Metamorphosis:Amet	Special features in each phylum	Demonstration through powerpoint presentation Visit of the campus to	Compare and analyze the different special features present in different phylum		

	abolous,Hemimetabolousand Holometabolous Social organization in termites and Bees :Life Cycle.Caste System and its Economic Importance		locate social insects		
	Mollusca: Foot and shells, Torsion with reference to Pila **Echinodermata:** Water vascular system and its function	Concept of torsion in pila and locomotion in Echimoderms	PPT, Demonstration water vascular system		

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SOPHIA GIRLS' COLLEGE, AJMER (*AUTONOMOUS*) 2019-20

B.Sc. I (SEMESTER I) Odd Sem **ZOOLOGY (PAPER II)**

(ZOO-102)

(Structure And Function Of Invertebrates)

Max. Marks :75 (50Ext; 25 Int) Min. Marks: 30(20 Ext;10 Int) Credit: 04

COURSE PLAN

SEM I Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
SEM I September	1 **Skeleton:** Endoskeleton (spicules of *Sycon)*	1.Basic concept of skeleton	PPT, , Pictures question, Google Classroom	1. Describe the basic structures of the different invertebrate phyla. 2. To understand the functioning of the	*Knowledge Based* -What is Mixotrophic Nutrition ? -Illustrate the development of Spicules *Understanding Based* -Compare Endoskeleton and	Knowledge--60 Understanding -30 Higher Order-10
	2 **Food, Feeding, Digestive** structures and Digestion: Autotrophic *(Euglena),* heterotrophic- through food vacuole *(Paramecium)* and in hydroid and medusoid zooids	2. concept of nutrition and types	Guest lecture PPT, Demonstration,			

	(*Obelia*), parasitic, (*Taenia, Hirudinaria*), predatory(*Palaemon,*).			various systems	Exoskeleton - Compare the various types of nutrition	
OCTOBER	3 **Respiration:** Aquatic general body surface (*Pheretima*)	Evolution in the mode of respiration	, Charts, Microscopic Slides, quizes			
	4 **Nervous System:** Sensory and nerve cells (*Obelia);* brain ring and longitudinal nerves (*Fasciola*)	Development of Spicules and canal system	Diagrams, Charts,Test,GD	3. To analyze the evolution of systems from lower to higher phyla	*Higher Order Thinking Skills Based* - Justify euglena as plant and animal based on its feeding habits	
	Coelenterata: Polymorphism, Corals and Coral reefs Platyhelminthes: Parasitic adaptations: Morphological and Physiological	Polymorphism and adaptations	Diagrams, Models, ppt, Class test		-Critically Evaluate the concepts of Cyclosis in Paramecium	
NOVEMB	Aschelminthes: Life cycle with reference to *Ascaris* and its Economic	Various Asexual and	Demonstration			

R EMBE R	Importance UNIT III **5.**Circulation: Cyclosis (*Paramecium),* diffusion (*Sycon, Taenia),* open circulatory system (*Palaemon),* closed circulatory system (*Nereis).* **6.**Excretion: General body surface (Paramecium), protonephridial system and flame cells (Fasciola), nephridia (Earthworm), malpighian tubules (insect), organ of Bojanus (Pila). **7.**Reproduction: Asexual (Paramecium, Sycon), alternation of generation (Obelia), sexual (Fasciola, Neries)	Sexual mode of reproduction	through powerpoint presentation Class test, revision		-Critically evaluate the functions of Nuchal organ and statocysts - Compare and analyze the different asexual mode of reproduction present in paramecium	

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B.Sc. II (SEMESTER IV) **ZOOLOGY (PAPER I) (ZOO-401)**

(Animal Physiology)

Max. Marks :75 (50Ext; 25 Int) Min. Marks: 30(20 Ext;10 Int) Credit: 03

COURSE PLAN

SEM IV Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
SEM IV December	**Physiology of Digestion**: nature of food stuff, various types of digestive enzymes and their digestive action in the alimentary canal.	1 various digestive enzymes and its effect on the process of digestion in mammals	PPT, Demosntration ,Google classroom	1. Develop an idea of various physiological activities prevalent in	*Knowledge Based* -what are the various digestive enzymes found in stomach -Illustrate the role of Bile in digestion.	Knowledge--60 Understanding-30 Higher Order-10

	Physiology of Respiration: Mechanism of breathing, exchange of gases, transportation of oxygen and carbon dioxide in blood, regulation of breathing.	1. Transport of gases. 2. concept of partial pressure in gases	Match the following, Quiz, Ppt,Lecture method	animals with special reference to mammals	*Understanding Based* -Analyse the transport of CO_2 -Justify the oxygen dissociation curve	
January	UNIT II **Physiology of Circulation**: Composition and function of blood, mechanism of blood clotting, heartbeat, cardiac cycle, blood pressure, body temperature regulation	1.Blood and its utility 2. Heart and its working	Diagrams, Charts, ppt, open book test	Analyze and understand the complexity of the various systems	*Higher Order Thinking Skills Based* -Justify the exchange of gases mechanism -Critically Evaluate the role of cardiac cycle in pumping the	
	Physiology of Excretion : Kinds of nitrogenous excretory end-products (aminotelic, ureotelic and uricotelic), role of liver in the formation excretory end products, functional architecture of mammalian kidney tubule and	1.Association of the nitrogenous waste with the habitat. 2Formation of concentrated urine	Diagrams, Charts,Test G.D			

	formation of urine, hormonal regulation of water and electrolyte balance.				bood and sustenance of life. - Compare and analyze the fuctions of any two endocrine glad
	Physiology of Muscle Contraction: Functional architecture of skeletal muscle, chemical and biophysical events during contraction and relaxation of muscle fibers.	Bio-physical events in muscle contraction	Diagrams, Models, Demonstration		
February March	1.Physiology of Nerve Impulse and Reflex Action: Functional architecture of a neuron	1.Transport of action potential 2.Synapse	Demonstration through powerpoint presentation	Summarize and write about the various physiologic a processes	
	2. Types of Endocrine Glands	1.Glands and its associated functions	PPT, Demonstration		
	3. Hormonal control of male and female reproduction and implantation	1.Male and Female hormine control	PPT, Case Studies,		

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B.Sc. II (SEMESTER IV) **ZOOLOGY (PAPER II) (ZOO-402)**

(Genetics and Evolution)

Max. Marks :75 (50Ext; 25 Int) Min. Marks: 30(20 Ext;10 Int) Credit: 03

COURSE PLAN

SEM IV Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
SEM IV December	**Mendelism**: Brief history of genetics and Mendel's work, Mendelian laws, their significance and current status, chromosomal theory of inheritance. **Chromosomal mutations**: Classifications of chromosomal mutations, translocation, inversion,	1Mendel's laws of Inheritance. 2.Mutation and its effects	PPT, Lecture method, Numericals on genetics	1. Explain Mendelism and its significance and what a mutation is and give examples of how it might occur	*Knowledge Based* -Explain the law of Independent Assortment -Illustrate evolution of moders wheat with refernce to ploidy	Knowledge--60 Understanding-30 Higher Order-10

	deletion and duplication, variation in chromosomal number - haploidy, diploidy, polyploidy, aneuoploidy,euploidy and polysomy.				*Understanding Based* -Analyse and compare Translocation and inversion	
	1. Gene Mutation: Insertion, Substitution, Frameshift, Missense and Nonsense.	1. Point Mutations	Assignments Quiz, Ppt,		-how would you Justify nonsense and missense mutation with its names	
January	UNIT II **1. Linkage and crossing over.** 2. **Genetic interaction:**	1.significance of crossing over 2. concept of gene interaction	Diagrams, Charts, ppt, open book test, Numericals	Deduce the significance of "crossing over" and		

	Supplementary genes, complementary genes, duplicate genes, epistasis, inhibitory and poymorphic genes, multiple gene inheritance, ABO blood groups and Rh factor and their significance			"linkage" and various genetic interactions, cytoplasmic inheritance and sex determinatio n	*Higher Order Thinking Skills Based* -Justify the ABO blood group inheritance -Critically Evaluate the the sex determination in *Drosophilla* . - Analyse the maternal gene effect with refernce to shell coiling in snail endocrine glad
	1. **Cytoplasmic inheritance.** 2. **Sex determination-** types and genic balance theory, Dosage compensation	1.Extra Chromosomal inheritance 2.role of allosomes and autosomes	Diagrams, Charts,Test		
February March	1. History of evolutionary thought –Lamarckism, Neo-	1.evolution in the trends of evolutionary thoughts	Demonstrati on through powerpoint presentation	Assess various	

	Lamarckism, Darwinism and Neo-Darwinism. Evidence of evolution.			evolutionary thoughts and summarize the mechanism of natural selection, variation, isolation & adaptation		
	2.Natural selection (differential reproduction), genetic basis of evolution, speciation 3 Variations, Isolation and Adaptations and their role in evolution.	1.patterns in evolutuon	PPT, Demonstration			
	4. **Study of extinct forms**: Dinosaurs, Archaeopteryx .Geological time scale (Basic idea).	1.basic idea on the extinct forms and time scale	PPT, Assignments			
April: Revision, Practicals and End Semester Examination						

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B.Sc. III (SEMESTER VI) **ZOOLOGY (PAPER II) (ZOO-602)**

(Ethology, Biostatistics and Applied Zoology)

Max. Marks :75 (50Ext; 25 Int) Min. Marks: 30(20 Ext;10 Int) Credit: 03

COURSE PLAN

SEM VI Month	UNIT/TOPIC	Concepts/facts	Teaching Pedagogy	Learning Outcomes	Questions	Marks Weightage (%)
SEM VI December	1.Introduction and history of Ethology. (Karl Von Frisch, K. Lorenz, N. Tinbergen). 2.Concepts of Ethology: fixed action pattern, sign stimulus, innate releasing mechanism, motivation, imprinting and learning. 3.Methods of studying behaviour:	1. Brief History into animal behaviour 2.terminologies and its concepts	PPT, Lecture method, live examples, National Geographic Channel	To help students understand animal strategies and interactions and the importance of behaviour	*Knowledge Based* -Explain the imprintimg -Illustrate evolution of studying brain behaviour	Knowledge--60 Understanding-30 Higher Order-10

	Neuroanatomical neurophysiological, neurochemical techniques.			for survival	*Understanding Based* -Analyse and compare the social behaviour in monkeys and deers -Justify the action of pheromones in animals *Higher Order Thinking Skills Based* -Critically Evaluate the the life cycle of *Apis indica* . - Analyse the ecnomic importance of lac and	
JANUARY	4. Territory and Home range- Role of pheromones. 5.Social behaviour: Characteristics and advantages with special reference to deer and monkey.	1. concept of pheromones and communication via it	Assignments Quiz, Ppt, role plays, Google Classroom			
February March	**Honey bee**: Social life and communication, life history, Apiculture..	1.life cycle and social behaviour	Demonstration through powerpoint presentation	To understand the applied and commerciall y useful aspect of animals .		
	Lac culture: life cycle, lac culture, composition, and uses of lac.	1.Economic importance w.r.t life cycle	PPT, Demonstration Assignments			

	Silk moth: Life history, Sericulture, Economic Importance. **Pisciculture**				sericulture	
April: Revision, Practicals and End Semester Examination						

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