B.Sc. Zoology Semester I

Effective from June 2023

Zoology Core Course

Course Code	US1MAZOO01 (T)	Title of the Course	Animal Diversity and Physiology-1			
Total Credits of the Course	04	Hours per Week	04			
Programme outcome			nm provides theoretical and practical knowledge asonance with National Education Policy 2020.			
(PO) for B.Sc.	diploma course	2. This programme provides a flexibility to students to acquire certificate course, diploma course, degree programme, honours degree with or without research having multi entry and multi exit facilities.				
	overall back gro	3. Bachelor of Science programme at Sardar Patel University is designed keeping the overall back ground preparation in mind for the student to either opt for a Master programme or jobs or to become an entrepreneur.				
	ne, i.e., semester one, various subjects offered as nterdisciplinary subject as per choice of the					
		and value-added courses are also offered for overall development of				
6. After end of the even semesters, the students may take exit after minimum requirements.						
		The students have the enough opportunity to complete four-year graduation programme with any major subject as per their choice.				
	opt for the mast semester, or in a	The students, after completion of the program from Sardar Patel University, can opt for the master's degree programme in the subject they have had at the final semester, or in a related discipline.				
Course	 To improve the 	scientific aware	ness among the students.			
Outcome	2. To make stude	nts to understan	d the role and contribution of Zoology in the			
(CO) development of science.						
For Zoology	experimental s	kills, data analysi	nd to give emphasis on the development of s, calculations, and also on the limitations of cientific data as well as results obtained.			
	4. To help studen	ts in understandi	ng the concepts of Zoology.			

Course	The students will learn about the Lower and Higher Invertebrates		
Specific	The General account of Protozoan, Sponge and Coelomates		
Outcome	3. The General Account of Higher Invertebrates		
(CPO)	4. The Physiology of Digestion and Enzymatic activities and Dieses		
For			
Zoology,			
Theory and			
Practicals			
Course	1. To understand the Zoological concepts of Animal with particular emphasis on their		
Objectives:	Experimental outcomes.		
	2. To understand the basic concepts of types of Invertebrates. The unit also		
	introduces understanding of General Aspects of Invertebrate Phyla and Animals.		
Linit	To provide exposure to Digestion process Description		
Unit	Description		
1	General characteristics and outline classification of lower Invertebrate Phyla, [up to		
	helminthes]		
	Physiology of Nutrition and reproduction in <i>Protozoa</i>		
	Life cycle and pathogenicity of <i>Plasmodium vivax</i> and <i>Entamoeba histolytica</i>		
	Sponges: Canal system and Skeleton		
	alternation of generations between sexual and asexual in <i>Obelia</i>		
	Life cycle and pathogenicity of Fesciola hepatica and Wuchereria bancrofti		
2	General characteristics and outline classification of Higher Invertebrate Phyla [up to		
	Echinodermata]		
	General characters of Annelida		
	Type Study: <i>Pheritima</i>		
	Economic importance of Annelida		
3	Social Life of Insect		
	Type study: periplaneta		
	Economic Importance of <i>Mollusca</i>		
	Water vascular system in Asteroidea		
4	Physiology Of Digestion:		
	Digestive organs and Digestive glands		
	Digestion of food		
	Absorption of food		
	Defecation		
	Disorders: Peptic Ulcer, Ulcerative Colitis, Gastro enteritis.		

- Modern Text book of Zoology Invertebrate by R.L.Kotpal
- Invertebrate Zoology by- Jordan & Verma
- A Text book of Animal Physiology by A.K.BERRY.
- Animal Physiology by M.P.ARORA.
- Principles of Anatomy & Physiology by TORTORA and GRABOWSKI

SARDAR PATEL UNIVERSITY B.Sc. FIRST SEMESTER PRACTICAL - ZOOLOGY

Effective from June 2023

4 Credits, 8 periods per week

Course Code	US1MAZOO02 (P)	Title of the Course	Animal Diversity and Physiology-1
Total Credits of the Course	04	Hours per Week	04
Part-1	 Classification upto class using Permanent slides and Specimen of Entaoeba histolytica, Plasmodium Vivex, Leucosolenia, Sycon, Hydra viridis, Jellyfish(Aurelia), Sea anemone (Metridium), Classification upto class using Permanent slides and Specimen of Tap worm (Tenea Solium), Liver fluke (Fasciola hepatica)Ascaris Lumbricoides, Filaria (Wuchereria bancrofti) Reproduction like Binary Fission Amoeba, Euglena, Paramecium, Ceratium, Conjugation in Paramecium Permanent Slides, Sponges Canal system Asconoid, Sycanoid and Leuconoid and all types of Spicules Study of Obelia with permanent slides Life cycle and pathogenicity of Fesciola hepatica and Wuchereria bancrofti On field study of vermiculture 		
	hibit to the students as per the availability in		
Part-2	 Classification upto Class. Earthworm(pheretimaposthuma), Neries, Leech(hirudinariagranulose), Cockroach (Periplanetaamericana), Locust (swarming grasshopper), Prawn (Palaemon), Sea Cucumber(HolothuriaLinnaeus), Starfish (asteroid). Permanent slides, Chaetae (setae), jaws of leech, parapodia of Nereis, mouth parts of Cockroach, Spiracles, Trachea Social organization of Honey Bee Complete Metamorphosis in Insects To Study Amylase effect on Starch To Study Tripsin effect on Protein On field study of Insect Diversity 		
	(Specimen other than the lnstitutes)	he list can be ex	hibit to the students as per the availability in

- A Manual of Practical Zoology- Invertebrate by P.S.VERMA
- Practical Physiology, Anatomy & Biochemistry by SHAH, PATEL& GOEL
- Practical Zoology Invertebrate by S.S. LAL

B.Sc. Zoology Semester I

US01MIZOO01 (T) Invertebrate Diversity

Effective from June 2023 Zoology Core Course

Zoology Core Course				
Course Code	US1MIZOO01 (T)	Title of the Course	Invertebrate Diversity	
Total Credits of the Course	02	Hours per Week	02	
Programme outcome (PO) for B.Sc.	knowledge of Education Po 2. This program diploma cour having multiple of State overall be Master programed. The entry level as major substudents. 5. In addition to courses and with the students. 6. After end of minimum recommendation of State option of the students of State option of the students of State option option of State of State option option of State of State option option of State of State option of State of State option of State of St	 diploma course, degree programme, honours degree with or without research having multi entry and multi exit facilities. 3. Bachelor of Science programme at Sardar Patel University is designed keeping the overall back ground preparation in mind for the student to either opt for a Master programme or jobs or to become an entrepreneur. 4. the entry level of the programme, i.e., semester one, various subjects offered as major subject, minor subject, interdisciplinary subject as per choice of the students. 5. In addition to that, some skill enhancement courses, ability enhancement courses and value-added courses are also offered for overall development of the students. 6. After end of the even semesters, the students may take exit after fulfilling the minimum requirements. 		
Course Outcome (CO) For Zoology	 To make stuthe develop To improve of experimentations of results obtains 	dents to unders ment of science scientific attitudental skills, dar of the experimental.	de and to give emphasis on the development analysis, calculations, and also on the ental method and Scientific data as well as anding the concepts of Zoology.	
Course Specific Outcome (CPO) For Zoology, Theory and Practicals	 The General The General 	account of Prot Account of High	it the Lower and Higher Invertebrates cozoan, Sponge and Coelomates ner Invertebrates and Enzymatic activities and Dieses	

Course	1. To understand the Zoological concepts of Animal with particular emphasis on		
Objectives:	their Experimental outcomes.		
	2. To understand the basic concepts of types of Invertebrates. The unit also		
	introduces understanding of General Aspects of Invertebrate Phyla and		
	Animals.		
	3. To provide exposure to Digestion process		
Unit	Description		
1	General characteristics and outline classification of lower Invertebrate Phyla, [up to		
	helminthes]		
	Physiology of Nutrition and reproduction in <i>Protozoa</i>		
	Life cycle and pathogenicity of <i>Plasmodium vivax</i> and <i>Entamoeba histolytica</i>		
	Sponges: Canal system and Skeleton		
	Life cycle and pathogenicity of Fesciola hepatica and Wuchereria bancrofti		
2	General characteristics and outline classification of Higher Invertebrate Phyla [up to		
	Echinodermata]		
	General characters of <i>Annelida</i>		
	Economic importance of <i>Annelida</i>		
	Social Life of Insect		
	Economic Importance of <i>Mollusca</i>		
	Water vascular system in Asteroidea		

- Modern Text book of Zoology Invertebrate by R.L.Kotpal
- Invertebrate Zoology by- Jordan & Verma
- A Text book of Animal Physiology by A.K.BERRY.

SARDAR PATEL UNIVERSITY B.Sc. FIRST SEMESTER

PRACTICAL - ZOOLOGY

US1MIZOO02 (P) Invertebrate Diversity

Effective from June 2023

Course Code	US1MIZOO02 (P)	Title of the Course	Invertebrate Diversity
Total Credits of the Course	02	Hours per Week	04
	Entaoeba histoly Jellyfish(Aurelia, fluke (Fasciola h Classification up Leech(hirudinar, (swarming grass Cucumber(Holot Reproduction lik Conjugation in F Permanent Slide and all types of	ytica, Plasmodiu), Sea anemone nepatica)Ascaris oto Class. Earthy iagranulose), Co shopper), Prawn thuria <u>Linnaeus</u>), S see Binary Fissio Paramecium es, Sponges Can Spicules es, Chaetae (seta ach, Spiracles, Ti ion of Honey Be	ee

- A Manual of Practical Zoology- Invertebrate by P.S.VERMA
- Practical Zoology Invertebrate by S.S. LAL

B.Sc. Zoology Semester I

US01IDZOO01 (T) Invertebrates

Effective from June 2023

	Zoology Core Course			
Course Code	US1IDZOO01 (T)	Title of the Course	Invertebrates	
Total Credits of the Course	02	Hours per Week	02	
Programme outcome (PO) for B.Sc.	knowledge of Education Poil 2. This program diploma cour having multi of the overall bar Master program. 4. the entry lever as major substudents. 5. In addition to courses and of the students. 6. After end of the minimum request. 7. The students programme of the students, can opt for the students.	 knowledge of different Science subjects in consonance with National Education Policy 2020. This programme provides a flexibility to students to acquire certificate course, diploma course, degree programme, honours degree with or without research having multi entry and multi exit facilities. Bachelor of Science programme at Sardar Patel University is designed keeping the overall back ground preparation in mind for the student to either opt for a Master programme or jobs or to become an entrepreneur. the entry level of the programme, i.e., semester one, various subjects offered as major subject, minor subject, interdisciplinary subject as per choice of the students. In addition to that, some skill enhancement courses, ability enhancement courses and value-added courses are also offered for overall development of 		
Course Outcome (CO) For Zoology	 To make stuthe develope To improve of experimentations of results obtain 	dents to unders ment of science scientific attitudental skills, dan of the experimental.	rareness among the students. Stand the role and contribution of Zoology in . de and to give emphasis on the development ta analysis, calculations, and also on the ental method and Scientific data as well as anding the concepts of Zoology.	
Course Specific Outcome (CPO) For Zoology, Theory and Practicals	 The General The General 	account of Prot Account of Higl	at the Lower and Higher Invertebrates cozoan, Sponge and Coelomates ner Invertebrates and Enzymatic activities and Dieses	

Course	1. To understand the Zoological concepts of Animal with particular emphasis on		
Objectives:	their Experimental outcomes.		
	2. To understand the basic concepts of types of Invertebrates. The unit also		
	introduces understanding of General Aspects of Invertebrate Phyla and		
	Animals.		
	To provide exposure to Digestion process		
Unit	Description		
1	General characteristics and outline classification of lower Invertebrate Phyla, [up to		
	helminthes]		
	Physiology of Nutrition and reproduction in <i>Protozoa</i>		
	pathogenicity of <i>Plasmodium vivax</i> and <i>Entamoeba histolytica</i>		
	Sponges: Canal system and Skeleton		
	pathogenicity of Fesciola hepatica and Wuchereria bancrofti		
2	General characteristics and outline classification of Higher Invertebrate Phyla [up to		
	Echinodermata]		
	General characters of Annelida		
	Economic importance of Annelida		
	Social Life of Insect		
	Economic Importance of <i>Mollusca</i>		
	Water vascular system in Asteroidea		

- Modern Text book of Zoology Invertebrate by R.L.Kotpal
- Invertebrate Zoology by- Jordan & Verma
- A Text book of Animal Physiology by A.K.BERRY.

SARDAR PATEL UNIVERSITY B.Sc. FIRST SEMESTER PRACTICAL - ZOOLOGY

US1IDZOO02 (P) Invertebrates Effective from June 2023

Course Code	US1IDZOO02 (P)	Title of the Course	Invertebrates
Total Credits		Hours per	
of the	02	Week	02
Course			

•	Classification upto class using Permanent slides and Specimen of				
	Entaoeba histoly	rtica, Plasmodiu	ım Vivex, Leucosolenia, Sycon, Hydra viridis,		
	Jellyfish(Aurelia)), Sea anemone	(Metridium), Tap worm (Tenea Solium), Liver		
	fluke <i>(Fasciola h</i>	epatica)Ascaris	Lumbricoides, Filaria (Wuchereria bancrofti)		
•	Classification up	to Class. Earthy	vorm(<i>pheretimaposthuma</i>), Neries,		

- Leech(hirudinariagranulose), Cockroach (Periplanetaamericana), Locust (swarming grasshopper), Prawn (Palaemon), Sea Cucumber(HolothuriaLinnaeus), Starfish (asteroid).
- Reproduction like Binary Fission Amoeba, Euglena, Paramecium, Ceratium, Conjugation in Paramecium
- Permanent Slides, Sponges Canal system Asconoid, Sycanoid and Leuconoid and all types of Spicules
- Permanent slides, Chaetae (setae), jaws of leech, parapodia of Nereis, mouth parts of Cockroach, Spiracles, Trachea
- Social organization of Honey Bee
- Complete Metamorphosis in Insects
- Field Study

- A Manual of Practical Zoology- Invertebrate by P.S.VERMA
- Practical Zoology Invertebrate by S.S. LAL

B.Sc. Zoology Semester II

US1SEZOO01 (T) Wildlife and Techniques

Effective from June 2023

Zoology Core Course

Carrage Carla	US1SEZOO01	Title of the	Wildlife and Tackeinner
Course Code	(T)	Course	Wildlife and Techniques
Total Credits of the Course	02	Hours per Week	02
Programme outcome (PO) for B.Sc.	of different S 2. This program diploma cou having multi	cience subjects in nme provides a rse, degree prog entry and multi e	rogram provides theoretical and practical knowledge of consonance with National Education Policy 2020. flexibility to students to acquire certificate course, gramme, honours degree with or without research exit facilities. The provides theoretical and practical knowledge of consonance and provides the
	overall back a programme of the students opt for the major subject.	ground preparation jobs or to beconevel of the prograt, minor subject, to that, some skill ded courses are at the even semesty irements. In the end with any major sure after completion aster's degree program in the program is the semesty in the end of t	on in mind for the student to either opt for a Master me an entrepreneur. ramme, i.e., semester one, various subjects offered as interdisciplinary subject as per choice of the students. I enhancement courses, ability enhancement courses also offered for overall development of the students. Sters, the students may take exit after fulfilling the ugh opportunity to complete four-year graduation abject as per their choice. In of the program from Sardar Patel University, can rogramme in the subject they have had at the final
Course Outcome (CO) For Zoology	 To improve To make single Zoology in the experimental the experimental control of the ex	tudents to und ne developmen scientific attitu al skills, data an ental method a	ills and awareness among the students. derstand the role and contribution of wildlife
Course Specific Outcome (CPO) For Zoology, Theory and Practicals		Account Techn	ut the Wildlife Techniques iques

Course	1. To understand the Zoological concepts of Animal with particular emphasis on their
Objectives:	Fields outcomes.
	2. To understand the basic concepts of wildlife and there studies

Unit	Description
1	Wild life of India, Sanctuary of India. National parks under special Projects: Tiger, Lion, Elephant, Crocodile, Spotted dear breeding Projects
	Endangered species
2	Wildlife Photography
	Wildlife Handy tools Magnifying glass, Scale,
	Camera traps
	GPS collars
	Telemetry equipment
	Weatherproof stationery cases and bags
	Tongs, Hooks
	Data sheets

- Modern Text Book of zoology Vertebrate by R .L. KOTPAL.
- Chordate Zoology by Jordan and Verma.