



Course Syllabus  
Gyanmanjari Science College  
Semester-2(B.Sc.)

**Subject:** Diversity, Histology and Economics zoology -BSCZO12304

**Type of course:** Minor

**Prerequisite:** Basic knowledge of Zoology.

**Rationale:** This course has been designed to make the students know about basic principles of Zoology. The students learn history of Classification, type's study of invertebrate animal, also learn about Histology and Economic zoology.

**Teaching and Examination Scheme:**

Teaching Scheme			Credits	Examination Marks					Total Marks
CI	T	P		C	SEE		CCE		
			Theory		Practical	MSE	LWA/V	ALA	
3	0	2	4	75	25	30	20	50	200

*Legends: CI-Class Room Instructions; T – Tutorial; P - Practical; C – Credit; SEE - Semester End Evaluation; MSE- Mid Semester Examination; LWA - Lab Work Assessment; V – Viva voce; CCE-Continuous and Comprehensive Evaluation; ALA- Active Learning Activities.*

3 Credits \* 25 Marks = 75 Marks (each credit carries 25 Marks) Theory  
1 Credits \* 25 Marks = 25 Marks (each credit carries 25 Marks) Practical  
SEE 100 Marks will be converted in to 50 Marks  
CCE 100 Marks will be converted in to 50 Marks  
It is compulsory to pass in each individual component.



## Course Content:

Unit No	Course content	Hrs	% Weightage
1	<b>Chapter-1 Diversity of Life</b> <ul style="list-style-type: none"> <li>• Classification of phylum Annelida up to class with examples.</li> <li>• Classification of phylum Arthropoda up to class with examples.</li> <li>• Classification of phylum Mollusca up to class with examples.</li> <li>• Classification of phylum Echinodermata up to class with examples.</li> </ul>	10	25%
2	<b>Chapter-2 General Morphology and Functional Anatomy of Earthworm and Animal Pathology</b> <ul style="list-style-type: none"> <li>• External character.</li> <li>• Body Wall.</li> <li>• Digestive system.</li> <li>• Reproductive system.</li> <li>• Nervous systems.</li> <li>• Septal Nephridia.</li> <li>• Blood Gland.</li> <li>• Setae.</li> </ul> <b>Diseases causing Protozoans:</b> <ul style="list-style-type: none"> <li>• Entamoeba histolytica , Trypanosoma brucei gambiense</li> </ul> <b>Diseases causing Nematodes:</b> <ul style="list-style-type: none"> <li>• Ascaris lumbricoides.</li> <li>• Wuchereria bancrofti.</li> </ul>	15	25%
3	<b>Chapter-3 Histology : Mammalian Histological structure of the following organs:</b> <ul style="list-style-type: none"> <li>• Stomach</li> <li>• Intestine</li> <li>• Liver</li> <li>• Pancreas</li> <li>• Kidney.</li> <li>• Smooth Muscles.</li> <li>• Skeletal Muscles.</li> <li>• Cardiac Muscles.</li> </ul>	10	25%



4	<b>Chapter-4 Economic Zoology</b> <ul style="list-style-type: none"> <li>• <b>Apiculture:</b> Types of honey bee, Indigenous method, Modern Method, Benefits and Drawbacks.</li> <li>• <b>Poultry:</b> Importance of poultry, Poultry Breeds, Methods of Poultry Farming, feeding apparatus.</li> <li>• <b>Poultry disease:</b></li> <li>• <b>Bacterial disease:</b> <ol style="list-style-type: none"> <li>1. Puloram 2. Chronic Respiratory disease</li> </ol> </li> <li>• <b>Viral disease:</b> <ol style="list-style-type: none"> <li>1. Fowl pox 2. Ranikhet</li> </ol> </li> <li>• <b>Fun Fungal disease:</b> <ol style="list-style-type: none"> <li>1. Aspargilloses 2. Afla-toxicosis</li> </ol> </li> </ul>	10	25%
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**Continuous Assessment:**

Sr. No	Active Learning Activities	Marks
1	<b>Prepare a diagram</b> Prepare a diagram of Histological structure of given topic by faculty and upload in GMIU web portal.	10
2	<b>Topic based Chart,</b> Faculty will assign topic and students will prepare Diagram and upload on GMIU web portal.	10
3	<b>Prepare a model</b> Prepare a model of Poultry Breeds, feeding apparatus of given topic by faculty and upload in GMIU web portal.	10
4	<b>Prepare a poster on Disease causing invertebrate animal.</b> Faculty will assign topic and students will prepare chart and upload on GMIU web portal	10
5	<b>Attendance</b>	10
<b>Total</b>		<b>50</b>



**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	20%	40%	40%	-	-	-

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	Describe Diversity of Living Organisms & Structure
CO2	Understand anatomy of Phylum Annelid with reference to animal model of Earthworm and also learn about animal pathology.
CO3	Know about the Histology of Animal organs.
CO4	Identify the Benefits of Economic zoology.

**List of Practical:**

Sr. No	Descriptions	Unit No	Hrs
1	Classification of phylum Annelida and Arthropoda up to the classes: Annelida : Nereis, Earthworm, Leech. Arthropoda : Paripatus, Crab, Prawn, Centipede, Millipede, Bed bug, Scorpion, Tick.	1	3
2	Classification of phylum Mollusca and Echinodermata up to the classes: Mollusca: Chiton, Pila, Unio, Pearl oyster, Sepia, Dentalium. Echinodermata: Starfish, Brittle star, Sea cucumber, Sea- lily, Sea-urchin.	1	3
3	To Study External characters of Earthworm by chart or multimedia.	2	2
4	To Study Digestive system of Earthworm by chart or multimedia.	2	2
5	To Study Reproductive system of Earth worm by chart or multimedia	2	2



Sr. No	Descriptions	Unit No	Hrs
6	To Study Nervous system of Earth worm by char or multimedia.	2	2
7	To Study pathogenic Protozoa.1. Trypanosome 2. Entamoeba	2	2
8	To Study pathogenic Nematodes.1. Ascaris 2. Filaria worm	3	2
9	Histological studies of the followings, mammalian tissues with the help of permanent slides: 1. Stomach. 2. Intestine. 3. Liver. 4. Kidney	3	3
10	Histological studies of the followings, mammalian tissues with the help of permanent slides: 1.Pancreas 2.Smooth muscles.3.Skeletal muscles.4.Cardiac muscles	3	3
11	To Study various types of poultry houses.	4	2
12	To Study various types of poultry breeds.	4	2
13	To Study various types of feeders used in poultry houses.	4	2
<b>Total</b>			<b>30</b>

**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) Text book of Zoology R. D. Vidyarthi
- 2) Animal Ecology S.P.Singh
- 3) Genetics. P.K. Gupta
- 4) Ecology Sarus Publication
- 5) Pranishastra (Gujarati) Ravi Prakashan
- 6) Jiv Vignan-2 (Gujarati) Nirav Prakashan
- 7) A Text Book of General Biology Tomer & Singh
- 8) Modern Text Book of Zoology(vertebrate) R.L.Kotpal
- 9) Modern Text Book of Zoology(invertebrate) R.L.Kotpal
- 10) Concept of Ecology N.Arumugam
- 11) Economic Zoology G.S.Shukla & V.B.Upadhyay
- 12) Pruthvanshi Praniyo ane Garbhvidya (Gujarati) A.B.Vyas
- 13) Utkrushtha Aprushthvanshi Praniyo (Gujarati) U.M.Rawal
- 14) Invertebrate Zoology E.L.Jordan & P.S.Verma
- 15) Prani Auotiki (Gujarati) Desai and Akhunji
- 16) Cell biology Genetics and Molecular Biology V.B. Rastogi
- 17) Molecular Biology and Sarus Publication. Genetic Engineering
- 18) Cell and Molecular Biology Sarus Publication.
- 19) Animal Diversity. Cleveland P. Hickman, Larry S Roberts, Susan L.

