

# ST. ALOYSIUS COLLEGE(AUTONOMOUS), JABALPUR

Reaccredited 'A+' Grade by NAAC(CGPA:3.68/4.00)  
College with Potential for Excellence by UGC  
DST-FIST Supported & STAR College Scheme by DBT

## Faculty of Science

Bachelor of Science (B.Sc.)

**SUBJECT: ZOOLOGY**

B.Sc. I Semester

Paper-Minor

**ANIMAL DIVERSITY: NON-CHORDATA**

### Course Outcomes

S. No.	Course Outcomes	
	<b>On completion of this course students will able to:-</b>	
01	Learn about the importance of systemic, taxonomy and phylogeny to get a concrete idea of evolution of non-chordate phyla.	U
02	Understand the various morphological, anatomical structures and functions of animals of different phyla	U
03	Get the knowledge about economic, ecological and medical significance of various animals in human welfare.	Apply
04	Understand the important parasites and their control measures	U

### Credit and Marking Scheme

	Credits	Marks		Total Marks
		Internal	External	
<b>Theory</b>	4	40	60	<b>100</b>
<b>Practical</b>	2	40	60	<b>100</b>
<b>Total</b>	<b>6</b>		<b>200</b>	

### Evaluation Scheme

	Marks	
	Internal	External
<b>Theory</b>	3 Internal Exams each of 20 Marks (During the Semester) (Best 2 will be taken)	1 External Exams (At the End of Semester)
<b>Practical</b>	3 Internal Exams (During the Semester) (Best 2 will be taken)	1 External Exams (At the End of Semester)

Dr. Shampa Jain  
31.7.24

Dr. Priyanka Singh  
31.7.24

Dr. Manju Dixit  
31/7/24

Ms. Amrita Saxena  
31/07/24



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## Content of the Course

### Theory

No. of Lectures (in hours per week): 2 Hrs. per week

Total No. of Lectures: 60 Hrs.

Maximum Marks: 60

Units	Topics	No. of Lectures
I	<b>Taxonomy, Phylogeny and Protozoa</b> <b>1. Taxonomy</b> 1.1 Elementary Knowledge of Zoological Nomenclature and International Code 1.2 Outline Classification of Animal Kingdom upto Phylum of acoelomate and coelomate non-chordates according to Parker and Haswell 7 <sup>th</sup> edition <b>2. Phylogeny</b> 2.1 Definition and Examples <b>3. Protozoa</b> 3.1 Phylum Protozoa: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples 3.2 Structure, life history and pathogenicity of malarial Parasite ( <i>Plasmodium vivax</i> ) 3.3 Protozoa and disease - Amoebiasis, Trypanosomiasis, Leishmaniasis & Trichomoniasis <b>Keywords/Tags:</b> ICZN, Classification, Protozoa, Plasmodium,	11
II	<b>Porifera, Coelenterata</b> <b>1. Porifera</b> 1.1 Phylum Porifera: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples 1.2 Type study of Sycon Morphology, Reproduction & Development 1.3 Canal system of Sponges <b>2. Coelenterata</b> 2.1 Phylum Coelenterata: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples. 2.2 Type Study of Obelia -Morphology, Life cycle 2.3 Corals and Coral reef formation <b>Keywords/Tags:</b> Classification, Porifera, Sycon, Coelenterata, Obelia, Coral reefs	11

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III	<p><b>Platyhelminthes, Nemathelminthes, Annelida</b></p> <p><b>1. Platyhelminthes</b></p> <p>1.1 Phylum Platyhelminthes: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>1.2 External morphology, larval forms and life history <i>Fasciola hepatica</i> (Liver fluke)</p> <p><b>2. Nemathelminthes</b></p> <p>2.1 Phylum Nemathelminthes: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>2.2 Pathogenic symptoms of Nematodes and diseases – <i>Ascariasis, Trichuriasis, Enterobiasis, Filariasis &amp; Trichinosis</i> (Trichinellosis)</p> <p><b>3. Annelida</b></p> <p>3.1 Phylum Annelida: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>3.2 Type study of Earthworm (<i>Pheretima</i>)</p> <p>3.3 Structure and significance of Trochophore larva</p> <p><b>Keywords/Tags:</b> Classification, Platyhelminthes, Liver fluke, Nematode disease,</p>	14
IV	<p><b>Arthropoda, Mollusca</b></p> <p><b>1. Arthropoda</b></p> <p>1.1 Phylum Arthropoda: General Characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>1.2 Type study of Prawn</p> <p>1.3 Larval forms of crustacea - Nauplius, Zoea, Megalopa &amp; Mysis larva.</p> <p>1.4 Insects as a vector of human disease - <i>Culex, Aedes, Tsetse fly &amp; Housefly.</i></p> <p><b>2. Mollusca</b></p> <p>2.1 Phylum Mollusca: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>2.2 Type study of <i>Pila</i></p> <p>2.3 Structure &amp; Significance of Glochidium larva</p> <p><b>Keywords/Tags:</b> Classification, Arthropoda, Prawn, Crustacea larva, Insects, Mollusca, <i>Pila</i>, Glochidium</p>	15



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V	<p><b>Echinodermata, Hemichordata</b></p> <p><b>1. Echinodermata</b></p> <p>1.1 Phylum Echinodermata: General characters of the phylum and outline classification up to classes with distinctive characters and suitable examples</p> <p>1.2 External features and water vascular system of Starfish (<i>Asterias</i>)</p> <p>1.3 Larval forms of Echinodermata</p> <p><b>2. Hemichordata</b></p> <p>2.1 Phylum Hemichordata: General characters of the phylum Hemichordate and relationship with non-chordates and chordates</p> <p>2.2. Balanoglossus - External morphology</p> <p>2.3 Structure and significance of tornaria larva</p> <p><b>Keywords/Tags:</b> Classification, Echinodermata, <i>Asterias</i>, Echinodermata larvae, Hemichordata, Balanoglossus, Tornaria</p>
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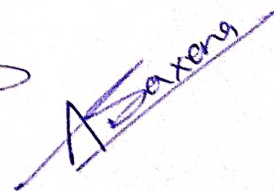
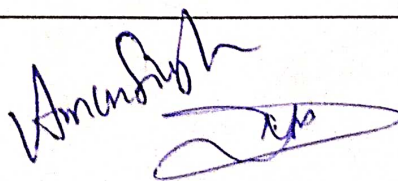
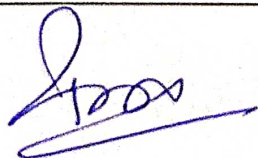
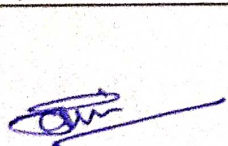
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## List of Practical

Part B- Content of the Course		
Total No. of Lectures – Tutorials – Practical (2 hour per week): L-T-P: 30		
Unit	Topic	No. of Lectures
I	Study of museum specimens and slides relevant to the invertebrates.	25
II	Dissection (Demonstration Only -Through You Tube Video or Models or Charts) a. Earthworm- Digestive system, Nervous system, Reproductive system b. Prawn-Nervous system and appendages c. Pila-Nervous System d. Cockroach-Digestive System, Nervous System (Easily available animal in residential areas which can be used for dissection and mounting)	12
III	Mounting a. Locally available small non-chordates, their larvae b. Mouth Parts of Insects – Cockroach/Mosquitoes	8
V	Economic Importance of any two invertebrates/ two Insects	5
VI	Parasitic Adaptation of any one parasite – Fasciola hepatica/Taenia solium	5
Keywords/Tags: Museum specimens, Slides, Dissection, Mounting, Benefited insects, parasitic adaptation.		



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## References

### Text Books, Reference Books and Other Resources:-

#### Suggested readings

1. Parker, J, Haswell, WA, "A Text Book of Zoology". VII edition, Vol. 1 & II, Low Price Publications, Delhi, 1990.
2. Barnes, RD, "Invertebrate Zoology", VII Edition, Cengage Learning, India, 2006.
3. Pechenik, JA, "Biology of the Invertebrates" McGraw-Hill Educations, VII Edition, 2015.
4. Sedgwick, A, "A Students Text Book of Zoology", Vol.I. II & Vol. III., Low Price Publications, Delhi, 1990.
5. Dhami and Dhami, "Invertebrate Zoology" R., Chand & Co., India, 2009.
6. Jordan and Verma, "Invertebrate Zoology," S. Chand & Company. New Delhi, 2013.
7. Agarwal, VK, "Zoology for Degree Students: Non-Chordata", S Chand & Company, 2017.
8. Kotpal, R, "Modem Text Book of Invertebrates", Rastogi Publications, Meerut, 2017
9. Kotpal, R. "Protozoa to Echinodermata (Phylum Series)", Rastogi Publications, Meerut, 2017.
10. <https://zoologylearningpoint.wordpress.com>
11. <https://zoologyresources.com>

