



बिरसा मुंडा ट्रायबल युनिवर्सिटी Birsā Munda Tribal University

राजपिपला, जि० नर्मदा Rajpipla, Dist. Narmda

Established by Tribal Development Department, Govt. of Gujarat

School of Science M.Sc. (ZOOLOGY) Programme

Subject Code& Name: MS01CZOO01- Systematics, Structural and Functional
Anatomy of Invertebrates

Teaching and Evaluation Scheme:

Teaching Scheme				Examination Scheme			
Credits				Component Weightage			
				Internal		External	
L	T	P	Total	TH	PWE	TH	PWE
4	-	-	4	50%	--	50%	--

Programme Name	M.Sc. Zoology
Semester	I
Course Code	MS01CZOO01
Course Title	Systematics, Structural and Functional Anatomy of Invertebrates
Course Content Type (Th./Pr.)	Theory
Course Credit	4
Sessions+ Lab. Per Week	4
Total Teaching/Lab. Hours	60 Hours
* 2 Laboratory = 1 Session	

Learning Objectives

1. Through this course student get insight about how in the taxonomic hierarchy formed according increases in the complexity of structure and function of the eukaryotes.
2. This course makes a detailed comparison of the anatomy and physiology of the different taxa of non-chordates.
3. The course thus gives an overview of the intricate life processes and adaptive radiations in non-chordates.

Prerequisites (if any)

1. One should aware about basics of taxa and hierarchy of taxonomy.
2. Student should know about organ systems presence in animals.

Learning Outcomes

On the Completion of this course, students will able to:

1. Understand the classification of organisms and the characteristics used to differentiate various taxonomic groups.
2. Analyze the structure, organization, and physiological similarities of organs and organ systems in invertebrates and other organisms.
3. Develop a foundation for future research and advanced studies in animal physiology.



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School of Science

M.Sc. (ZOOLOGY) Programme

Detailed Contents		
UNIT	TOPIC/SUB-TOPIC	TEACHING HOURS
I	Principles & methods of taxonomy: Concepts of species, Hierarchical categories and taxa, Principles of zoological nomenclature and Types in zoological nomenclature Classification of Animals Criteria used in animal classification, Outline classification from Protozoa to Hemichordata, Diagnostic characters of major taxa Evolutionary Relationships Phylogenetic relationships among invertebrate groups, Origin and significance of coelom, Protostomia and Deuterostomia	15
II	Nutrition and Digestion Feeding mechanisms in Cnidaria, Digestive processes in Cnidaria Filter-feeding adaptations in: Polychaeta, Mollusca and Echinodermata Respiration Structure and functions of respiratory organs Mechanism of respiration in: Annelida, Arthropoda and Mollusca.	15
III	Excretion Structure and functions of excretory organs in: Helminthes, Annelida, Arthropoda and Mollusca Nervous System Comparative account of nervous systems from: Cnidaria to Echinodermata Reproduction Asexual and Sexual reproduction Reproductive adaptations in invertebrates	15
IV	Invertebrate Larvae Major larval forms of invertebrates Evolutionary and phylogenetic significance of larvae Minor Phyla Structural organization, affinities and general characteristics of: Entoprocta, Nemertea (Nemertinea), Rotifera, Brachiopoda and Phoronida.	15



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Text Book(s)

1. A Text Book of Invertebrate Zoology by R. L. Kotpal
2. Text Book of Zoology Phylum Series by R. L. Kotpal
3. Modern Text Book of Zoology Invertebrates by Verma & Agrawal
4. Text Book of Zoology by S.N. Prasad A Text Book of Zoology by P. S. Dhami and J. K. Dhami

Reference Books

1. Vertebrate practical Zoology by P. S. Verma and S. S. Lal
2. Invertebrate Zoology by Jordan and Verma
3. In vertebrate practical Zoology by P. S. Verma and S. S. Lal
4. Biology of Animals by Cleveland Hickman and Larryds
5. Invertebrates by Richard C. Brusca, Wendy Moore & Stephen M. Shuster, Oxford University Press
6. Integrated Principles of Zoology by Cleveland P. Hickman Jr., Larry Roberts, Susan Keen et al., McGraw-Hill Education
7. Zoology: An Evolutionary Approach by Jeffrey Levinton, Oxford University Press
8. Functional Anatomy of the Invertebrates (Vols. I-III) by T. H. Bullock & G. A. Horridge W. H. Freeman
9. Animal Diversity by Cleveland P. Hickman Jr. McGraw-Hill Education
10. Invertebrate Structure and Function by E. J. W. Barrington CBS Publishers / ELBS
11. Principles of Animal Taxonomy by G. G. Simpson Columbia University Press
12. Animal Physiology by Richard Hill, Gordon Wyse & Margaret Anderson Sinauer Associates

Web Resources

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Required Software(s) (if any)

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Practical(s) (if any)

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L:: Lecture, T:: Tutorial , P::Practical

PWE::Practical Work Examination

(PWE includes Laboratory practical work, project work, viva simulation exercise work etc.)

