

UNIVERSITY OF MADRAS
B.Sc. DEGREE PROGRAMME IN PLANT BIOLOGY
AND PLANT BIOTECHNOLOGY
SYLLABUS WITH EFFECT FROM 2023-2024

Course Code	Course Name	Category	L	T	P	S	Credits	Inst. Hours	Marks		
									CIA	External	Total
139E21	ELECTIVE ZOOLOGY PRACTICAL – I & II SEMESTERS	Elective		-	Y	-	2	2	40	60	100
Learning Objectives											
CO1	To understand the structure and label the various parts of the dissected organisms and to sketch the required system using virtual dissections, charts and web resources.										
CO2	To compare and discuss the difference in the mouth parts of cockroach and mosquitos by mounting and drawing										
CO3	To identify and understand the different invertebrate and chordate forms and classify them using lab manuals										
CO4	To identify and discuss the significance of pigeon feather and placenta. To compare and criticise various types of syndromes.										
CO5	Field trip helps students to understand and apply the theoretical knowledge. To plan the area of research. Campus fauna enables them to understand, identify and classify the various fauna surrounding them. It also enables them to compile all the data and to discuss the importance of conservation of fauna										
UNIT	Details							No. of Hours	Course Objectives		
I	DISSECTION: 1. Cockroach - digestive system 2. Cockroach - nervous system 3. Prawn - nervous system 4. Fish -digestive system							12	CO1		
II	MOUNTING: 1. Mouth parts- Cockroach 2.Mouth parts - Mosquito 3.Scales-Placoid, Cycloid and Ctenoid 4.Prawn appendages							12	CO2		
III	SPOTTERS- <i>Paramecium</i> , <i>Plasmodium</i> , Scypha, <i>Leucosolenia</i> , Corals. <i>Taenia solium</i> –entire, <i>Ascaris</i> male and female. Earthworm, Prawn ,Scorpion, Pila, Starfish,							12	CO3		
IV	Amphioxus, Shark,, Frog, Calotes, Pigeon feather,							12	CO4		

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	Rabbit, sheep placenta, Genetic disorder plates (Down's, Turner and Klinefelter). Human sperm, T.S. of ovary, Kidney structure, sphygmomanometer.		
V	Field visit – Study of fauna in the campus	12	CO5
	Total	60	

Course Outcomes

Course Outcomes	On completion of this course, students will;		
CO1	Compare and distinguish the dissected internal organs of lower and higher animals.	PO1,PO3,PO5	
CO2	Prepare and develop the mounting procedure of important invertebrate and chordate anatomical parts and to appreciate the structure, function and mode of life.	PO1, PO3,PO5	
CO3	Identify and label the external features of different groups of invertebrate animals	PO6, PO8	
CO4	Identify and label the external features of different groups of chordate animals	PO6, PO8	
CO5	Understand and apply the theoretical knowledge. To plan the area of research and to identify different groups of invertebrate and chordate animals.	PO1,PO3, PO8	

Text Books (Latest Editions)

1.	Ekambaranathalyayar and T. N. Ananthakrishnan, 1995 A manual of Zoology Vol.I (Part 1, 2) S. Viswanathan, Chennai
2.	Ganguly, Sinha and Adhikari, 2011. Biology of Animals: Volume I, New Central Book Agency; 3rd revised edition. 1008 pp.
3.	Sinha, Chatterjee and Chattopadhyay, 2014. Advanced Practical Zoology, Books & Allied Ltd; 3rd Revised edition, 1070 pp.
4.	Lal, S. S., 2016. Practical Zoology Invertebrate, Rastogi Publications.
5.	Verma, P. S. 2010. A Manual of Practical Zoology: Invertebrates, S Chand, 497pp.
6.	Lal S S, 2009. Practical Zoology Vertebrate, Rajpal and Sons Publishing, 484pp.

References Books

(Latest editions, and the style as given below must be strictly adhered to)

1.	Barnes, R.S.K., Calow, P., Olive, P.J.W., Golding, D.W. and Spicer, J.I. (2002). <i>The Invertebrates: A New Synthesis</i> , III Edition, Blackwell Science.
2.	Barnes, R.D. (1982). <i>Invertebrate Zoology</i> , V Edition. Holt Saunders International Edition.
3.	Barrington, E.J.W. (1979). <i>Invertebrate Structure and Functions</i> . II Edition, E.L.B.S. and Nelson
4.	Boradale, L.A. and Potts, E.A. (1961). <i>Invertebrates: A Manual for the use of Students</i> . Asia Publishing Home.

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5.	Lal, S.S. 2005. A text Book of Practical Zoology: Invertebrate, Rastogi, Meerut	
Web Resources		
1.	https://nbb.gov.in/	
2.	http://www.agshoney.com/training.htm	
3.	https://icar.org.in/	
4.	http://www.csrtimys.res.in/	
5.	http://csb.gov.in/	
	https://iinrg.icar.gov.in/	
	https://www.nationalgeographic.com/animals/invertebrates/	
Methods of Evaluation		
Internal Evaluation	Continuous Internal Assessment Test	
	Assignments	
	Seminars	
	Attendance and Class Participation	
		40 Marks
External Evaluation	End Semester Examination	
		60 Marks
		100 Marks
Methods of Assessment		
Recall (K1)	Simple definitions, MCQ, Recall steps, Concept definitions	
Understand/ Comprehend (K2)	MCQ, True/False, Short essays, Concept explanations, Short summary or overview	
Application (K3)	Suggest idea/concept with examples, Suggest formulae, Solve problems, Observe, Explain	
Analyze (K4)	Problem-solving questions, Finish a procedure in many steps, Differentiate between various ideas, Map knowledge	
Evaluate (K5)	Longer essay/ Evaluation essay, Critique or justify with pros and cons	
Create (K6)	Check knowledge in specific or offbeat situations, Discussion, Debating or Presentations	

Mapping with Programme Outcomes:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8
CO 1	S							
CO 2	M		M					
CO 3				S		S		
CO 4				S	S	M		
CO 5			S					S

S-Strong(3)

M-Medium (2)

L-Low (1)