

ST. PHILOMENA'S COLLEGE(AUTONOMOUS)

Affiliated to University of Mysore
Accredited by NAAC with 'B⁺⁺' Grade
Bannimantap, Mysore, Karnataka,
India-570015



DEPARTMENT OF ZOOLOGY

**The Board of Studies in Zoology which met on 20/08/2024 has
approved the syllabus and pattern of examination for Open**

Elective paper - Animal Associations for

Academic Year 2024-25

onwards

BOS COMMITTEE MEMBERS

Sl. No.	Name	Designation
1	Mrs. Mary Sofia I	Chairman
2	Dr. M.S Krishna	University of Mysore - Member
3	Dr. Hemachandra Amin	Other University-Member
4	Dr. Mahadevaswamy	External Member
5	Dr. Sathish S V	External Member
6	Mrs. Sangeetha MD	Internal Member
7	Mrs. Neena PK	Internal Member

Course Title: : Animal Associations	Course Credits: 3
Course Code: :	L-T-P per week: 3-0-0
Total Contact Hours: 42	
Formative Assessment Marks:40	Summative Assessment Marks:60

Pedagogy: Written Assignment/Presentation/Project / Term Papers/Seminar/Field studies

Formative Assessment		
Assessment Occasion	Assessment type	Weightage in Marks
C1 First component	Test	10
C1 Second Component	Assignment	10
C2 First component		10
C2 Second Component		10
Total		40

Course objectives

- To understand different animal associations (mutualism, commensalism, and predation) and their ecological significance through real-world examples.
- To explore the importance of group living, communication, and teamwork in animals for survival and reproduction.
- To investigate altruistic and cooperative behaviors in animals and their evolutionary benefits for group survival and social structure.

Course Learning Outcome

CLO	After the completion of this course, the student will be able to
CLO-1	Students will be able to differentiate between various animal associations (mutualism, commensalism, predation) and explain their ecological roles.
CLO-2	Students will understand the significance of social bonds and teamwork in animals and demonstrate how these behaviors contribute to survival and reproduction.
CLO-3	Students will analyze altruistic and cooperative behaviors in animals, identifying their evolutionary benefits and their impact on group dynamics.

Content	42hrs
<p>Unit 1: Types of Animal Associations</p> <ul style="list-style-type: none"> • Symbiosis • Mutualism: Both animals benefit (e.g., clownfish and sea anemone) • Commensalism: One benefits, the other is unaffected (e.g., barnacles on whales) • Parasitism: One benefits, the other is harmed (e.g., ticks on dogs) • Predation and Competition • Predator-prey relationships (e.g., lion and zebra) • Competition for resources (e.g., two bird species for the same food) <p>Examples in Nature</p> <ul style="list-style-type: none"> • Birds and mammals in seed dispersal • Cleaner fish removing parasites from larger fish 	14
<p>Unit 2: Social Bonds and Teamwork in Animals</p> <p>Living in Groups: Strength in Numbers</p> <ul style="list-style-type: none"> • Advantages of group living: Protection from predators, sharing resources, and caring for young <p>Examples: Elephants forming family groups, zebras using stripes for group camouflage</p>	14

<p>Teamwork in Hunting and Survival</p> <ul style="list-style-type: none"> • Coordinated hunting: Wolves, orcas, and lions working together • Sharing resources: Vampire bats sharing food with others in need <p>Communication: The Language of Animals</p> <ul style="list-style-type: none"> • Visual signals: Peacock displays and firefly flashes • Sounds and calls: Alarm calls in monkeys, songs in whales • Chemical signals: Ants marking trails and bees using pheromones 	
<p>Unit 3: Mutualism and Cooperation in Animals</p> <p>Mutual Benefits</p> <ul style="list-style-type: none"> • Pollinators (bees and butterflies) and flowering plants • Oxpeckers eating parasites off large mammals like rhinos <p>Cooperation and Altruism</p> <ul style="list-style-type: none"> • Helping others: Dolphins rescuing injured peers, meerkats standing guard • Raising young together: Penguins huddling to keep chicks warm, birds in cooperative breeding <p>Human Relevance</p> <ul style="list-style-type: none"> • Domesticated animals providing services (e.g., dogs herding sheep) 	14

Reference

1. Animal Ecology by S. K. Singh
2. Principles of Animal Behaviour by R. B. Singh
3. Animal Behavior: An Evolutionary Approach by John Alcock
4. Symbiosis: An Introduction to Biological Associations by J. L. B. Smith
5. The Evolution of Cooperation by Robert Axelrod
6. Parasites and the Behavior of Animals by Janice Moore
7. Ecology of Symbiosis by Peter J. D. (Ed.)

**Blueprint of End semester
examination QUESTION
PAPER PATTERN**

Semester : IV		Subject: ZOOLOGY OE
Title: Animal Associations		QP Code:
Time: 2 1/2 Hours		Max Marks: 60
Instructions to the Candidates: Draw diagram wherever necessary.		
PART A		
I	Write short notes on SIX of the following.	6X6=36
1		
2		
3		
4		
5		
6		
7		
8		
PART-B		
II	Write detailed notes on any TWO of the following.	2X12=24
9		
10		
11		
12		