



KANNUR UNIVERSITY
കണ്ണൂർ സർവകലാശാല

(Abstract)

FYUG Zoology Programme - Modified Scheme and Syllabus of the Fifth Semester - Approved and Implemented with effect from 2024 Admission - Orders Issued

ACADEMIC C SECTION

ACAD C/ACAD C3/17633/2024

Dated: 21.08.2026

Read:-1. U.O No. ACAD/FYSC-III/17633/2024 dated 07.09.2024

2.U.O of even No.dated 28.10.2025

3.Email Dated 08.06.2026 from Dr. Sapna Jacob , former member of the Board of studies in Zoology (UG).

4.U.O of even No.dated 20.06.2026

5.E-mail from the Convenor,Expert committee dated 02.07.2026

6. E-mail from the Dean, Faculty of Science dated 02.07.2026

7. Orders of the Vice Chancellor in the file of even number dated 14.08.2026

ORDER

- The Scheme and Syllabus of all semesters of the FYUG B.Sc. Zoology Programme were approved and implemented vide paper read as (1) above.
- The Modified Scheme and Syllabus of the Third Semester of the FYUG B.Sc. Zoology Programme were approved and implemented with effect from the 2024 admission, vide paper read as (2) above.
- Vide paper read as (3) above, Dr. Sapna Jacob, a former member of the Board of Studies in Zoology (UG), informed that there were certain overlaps and similarities in the syllabi of two courses in the Fifth Semester and requested that necessary steps be taken to rectify the anomalies at the earliest.
- Vide paper read as (4) above, an Expert Committee was constituted for the rectification of anomalies in the Fifth Semester syllabus of the FYUG B.Sc. Zoology Programme,as the tenure of the former Board of Studies in Zoology (UG) had expired.
- Vide paper read as (5) above, the Convenor of the Expert Committee submitted the rectified syllabus of the Fifth Semester of the FYUG B.Sc. Zoology Programme for approval and implementation with effect from the 2024 admission.
- The rectified syllabus of the Fifth Semester of the FYUG B.Sc. Zoology Programme was forwarded to the Dean, Faculty of Science, for verification, and the Dean, vide paper read as (6) above, recommended approval of the same.



- The Vice Chancellor, after considering the recommendation of the Dean, Faculty of Science, and in exercise of the powers of the Academic Council conferred under Section 11(1), Chapter III of the Kannur University Act, 1996, and all other enabling provisions read togetherwith , **approved the rectified Scheme and Syllabus of the Fifth Semester of the FYUG B.Sc. Zoology Programme for implementation with effect from the 2024 admission, subject to reporting to the Academic Council.**
- Orders are issued accordingly.
- The Scheme and Syllabus of the Fifth Semester of the FYUG B.Sc. Zoology Programme are appended to this U.O. and uploaded on the University website.

Sd/-

Bindu K P G

Joint Registrar (Acad)

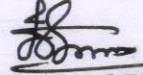
For REGISTRAR

To: 1. The Controller of Examinations (through PA to CE)
2. The Principals of Arts and Science Colleges affiliated to Kannur University

Copy To: 1. The Convenor, Expert committee, Zoology (UG)
2. JR/AR (Examination)
3. DR/AR (Academic)
4. The IT Cell (For uploading in the website)
5. SF/DF/FC



Forwarded / By Order


SECTION OFFICER



KU5DSEZOO304:GENERALPARASITOLOGY(Elective)

Semester	Course Type	CourseLevel	CourseCode	Credits	TotalHours
V	DSE	300	KU5DSEZOO304	4	60

LearningApproach (Hours/Week)		MarksDistribution			Duration of ESE (Hours)
Lecture/Tutorial	Practical	CE	ESE	Total	
4	-	30	70	100	2

Course Description:

This course covers a wider range of topics related to parasites, their vectors, and the diseases they cause, as well as methods for controlling vectors and preventing the spread of diseases. It provides a comprehensive understanding of parasitology and medical entomology, which are crucial fields for understanding and managing infectious diseases.

Course Prerequisite:

Course Outcomes:

	Expected Outcome	Learning Domains
CO1	Understand basic concepts about parasitic animals	U
CO2	Differentiate between various ectoparasites & endoparasites	E
CO3	Apply vector management strategies in preventing vector-borne diseases	A
CO4	Evaluate mechanisms involved in the transmission of Zoonotic diseases	E

**Remember(R), Understand(U), Apply(A), Analyse(An), Evaluate(E), Create (C)*

Mapping of Course Outcomes to PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5
CO 1	2	2	0	0	2
CO 2	3	3	1	0	3
CO 3	2	2	2	0	3
CO 4	2	2	2	2	3



Module I: General concepts of Parasitology & Parasitic protists (12hours)

Unit I: Introduction to Parasitology

- 1.1 Parasites, parasitoids, hosts
- 1.2 Basic concepts of parasitism, symbiosis, commensalism, mutualism
- 1.3 Types of parasites & types of hosts
- 1.4 Host-parasite relationship, transmission of parasites

Unit II: Parasitic Protists

Study of Morphology, Life Cycle, Prevalence, Epidemiology, Pathogenicity, Diagnosis, Prophylaxis and Treatment of

1.5 *Entamoeba histolytica*

1.6 *Giardia intestinalis*

1.7 *Trypanosoma gambiense*

1.8 *Leishmania donovani*

1.9 *Plasmodium vivax*

Module II: Parasitic Platyhelminthes (12hours)

Unit I: Parasitic Trematodes

Study of Morphology, Life Cycle, Prevalence, Epidemiology, Pathogenicity, Diagnosis, Prophylaxis and Treatment of-

2.1 *Fasciola hepatica*

2.2 *Schistosoma haematobium*

Unit II: Parasitic Cestodes

Study of Morphology, Life Cycle, Prevalence, Epidemiology, Pathogenicity, Diagnosis, Prophylaxis and Treatment of-

2.3 *Taenia solium*

2.4 *Hymenolepis nana*



Module III: Parasitic Nematodes	(12hours)
Unit I: Intestinal nematodes Study of Morphology, Life Cycle, Prevalence, Epidemiology, Pathogenicity, Diagnosis, Prophylaxis and Treatment of 3.1 <i>Ascaris lumbricoides</i> 3.2 <i>Ancylostoma duodenale</i> Unit II: Tissue dwelling nematodes Study of Morphology, Life Cycle, Prevalence, Epidemiology, Pathogenicity, Diagnosis, Prophylaxis and Treatment of 3.3 <i>Wuchereria bancrofti</i> 3.4 <i>Loa loa</i>	
Module IV: Parasitic Arthropods & Vertebrates	(12hours)
Unit I: Parasitic Arthropods Biology, importance and control of 4.1 Ticks & mites (eg: <i>Boophilus</i> and <i>Sarcoptes</i>) 4.2 <i>Pediculus humanus</i> (head and body louse), 4.3 <i>Phthirus</i> 4.4 <i>Xenopsylla cheopis</i> 4.5 <i>Cimex lectularius</i> Unit II: Vertebrates exhibiting parasitic behaviour Biology, parasitic behaviour and importance of- 4.6 Cookicutter Shark (<i>Isistius brasiliensis</i>) 4.7 Hood Mockingbird (<i>Mimus macdonaldi</i>) 4.8 Vampire bat (<i>Desmodus rotundus</i>)	



Teacher Specific Module	12 Hours
Directions: 20 percent of the content can be modified by the course teacher	

Essential Readings:

1. Arora, D. R and Arora, B. (2001) Medical Parasitology. II Edition. CBS Publications.
2. E.R. Noble and G.A. Noble (1982) Parasitology: The biology of animal parasites. V Edition.
3. Ahmed, N., Dawson, M., Smith, C. and Wood, Ed. (2007) Biology of Disease. Taylor and Francis Group.
4. Parija, S. C. Textbook of medical parasitology, protozoology & helminthology (Text and colour Atlas), II Edition, All India Publishers & Distributors, Medical Books Publishers, Chennai, Delhi.
5. Meyer, Olsen & Schmidt's Essentials of Parasitology, Murray, D. Dailey, W.C. Brown Publishers.
6. K. D. Chatterjee (2009). Parasitology: Protozoology and Helminthology. XIII Edition, CB Sn P.
7. Gunn, A. and Pitt, S.J. (2012). Parasitology: An Integrated Approach. Wiley Blackwell.
8. Noble, E. R. and G.A. Noble (1982) Parasitology: The biology of animal parasites. V th Edition, Lea & Febiger.
9. Paniker, C.K.J., Ghosh, S. [Ed} (2013). Paniker's Text Book of Medical Parasitology. Jaypee, New Delhi.
10. Parija, S.C. Text Book of Medical Parasitology, Protozoology & Helminthology (Text and color Atlas), II Edition, All India Publishers & Distributors, Medical Books Publishers, Chennai, Delhi.
11. Roberts, L.S and Janovy, J. (2009). Smith & Robert 's Foundation of Parasitology. 8th. Ed. McGraw Hill.
12. Bogitsh, B. J. and Cheng, T. C. (2000). Human Parasitology. 2nd Ed. Academic Press, New York.



13. Chandler, A. C. and Read. C. P. (1961). Introduction to Parasitology, 10th ed. John Wiley and Sons Inc.
14. Cheng, T.C.(1986).General Parasitology. 2nd ed. Academic Press, Inc. Orlando. U.S.A.
15. Schmidt, G. D. and Roberts, L. S. (2001). Foundation of Parasitology. 3rd ed. McGraw Hill Publishers.
16. Schmidt, G.D.(1989).Essentials of Parasitology. Wm.C.Brown Publishers.

Assessment Rubrics:

Evaluation Type		Marks
1. End Semester Evaluation		70
2. Continuous Evaluation		30
Continuous Evaluation		
Theory	Method of Assessment	Marks
a)	Testpaper I	6
b)	Testpaper II	6
c)	Viva-Voce	6
d)	Assignment	6
e)	Seminar	6
		Total – 30 marks



KU5DSEZOO308:ECONOMICZOOLOGY(Elective)

Semester	Course Type	CourseLevel	CourseCode	Credits	TotalHours
V	DSE	300	KU5DSEZOO308	4	60

LearningApproach(Hours/Week)		MarksDistribution			Duration of ESE (Hours)
Lecture/Tutorial	Practical	CE	ESE	Total	
4	-	30	70	100	2

Course Description:

The course will provide the fundamentals of economically important animals and farming them. It will explore the different animal rearing methods. Specifically, the course is made up of units on: Parasitism, pests and their control; aquaculture, poultry and Animal husbandry. These topics will include identification and control of various parasites and pests and describing the various important rearing methods. Economically important of fish, dairy, poultry, prawn, oysters etc. are also studied.

Course Pre requisite:**Course Outcomes:**

	Expected Outcome	Learning Domains
CO1	Acquire knowledge about different beneficial and harmful animals (U)	U
CO2	Understand about mode of transmission and disease caused by pests and parasites and evaluate methods to mitigate their ill-effects (E)	E
CO3	Evaluate the economic viability of farming beneficial organisms as a means of income (An)	An
CO4	Evaluate quality of animal products and suggest methods to improve their storage and consumption (E)	E

**Remember(R), Understand(U), Apply(A), Analyse(An), Evaluate(E), Create (C)*

Mapping of Course Outcomes to PSOs

	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	2	3	0	0	1
CO2	2	3	0	0	3
CO3	0	0	2	0	1
CO4	0	0	3	0	3



Course Contents

Module I: Parasites & Parasitism 12 Hrs. Unit I: 1.1. Protozoan parasites infecting humans: brief account on morphology, life cycle, pathogenicity, prevention and treatment of- a) <i>Naegleria fowleri</i>, b) <i>Balantidium coli</i> 1.2. Helminth parasites infecting humans: brief account on morphology, life cycle, pathogenicity, prevention and treatment of- a) <i>Echinococcus granulosus</i>, b) <i>Trichuris trichura</i>, c) <i>Dracunculus medinensis</i>, d) <i>Enterobius vermicularis</i>	Module II: Pests and Pest Control 12Hrs. Unit I: 2.1 Classification of pests- potential pests, key pests, occasional pests, regular pests, seasonal pests, persistent pests, sporadic pests- with example. 2.2 Brief account of Pest control- Cultural, mechanical, chemical, Biological & IPM. Insecticides & insecticide resistance. Unit II: 2.3 Pests of Paddy, Stored Grains, Coconut and Mango. (Rice warming caterpillar, rice bug, red palm weevil, coconut mite and mango stem borer). Scientific name of pest, damage caused & control methods. Unit III: 2.4 Insect vectors of human diseases and their control: Life cycle, and control measures of- a) <i>Anopheles</i> b) <i>Culex</i> c) <i>Aedes</i>	Module III: Aquaculture 12 Hrs Unit I: 3.1 Aquaculture- Introduction, significance. Modern fish farming techniques- aquaponics, RAS, Biofloc and aquascaping.
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3.2 Pisciculture- Importance of Pisciculture, construction & Management of pond 3.3 Common culturable food fish- Etroplus, common carps, Tilapia- seed production and collection, breeding and types of culture, composite fish farming. Unit II: 3.4 Ornamental fish farming- methods of aquarium keeping, different types of aquaria, setting up of aquarium, maintenance of aquarium 3.5 Ornamental fishes- indigenous and exotic- <i>Puntius</i> species, <i>Mystus</i>, gold fish, <i>Denison barb</i> Unit III: 3.6 Prawn culture- culturable species, culture methods, induced breeding 3.7 Pearl Culture- culturable species, culture methods, Preparation of nuclei, host and graft tissue, implantation, nursing & harvest.	
Module IV: Poultry Science, Dairy and Animal Husbandry Unit I: 4.1 Poultry farming- Importance of egg production, nutritive value of eggs, testing of egg. 4.2 Poultry breeds- Indigenous breeds (Brahma, Giriraja) & Exotic breeds (Rhode Island Red, Leghorn) 4.3 Diseases of fowl: Ranikhet, coccidiosis – pathogen, symptoms, treatment, prevention and control. Unit II: 4.4 Dairy and Animal Husbandry - Cattle farming- production and care of cattle 4.5 Cattle breeds- Exotic breeds, cross breeds, native breeds (Gir, Sahiwal, Jersey, Brown Swiss, Jersey cross, Karan Swiss) 4.6 Diseases- Anthrax, Foot and mouth diseases - pathogen, symptoms, treatment, prevention and control. 4.7 Pasteurization, Quality of milk, Milk products	12 Hrs
Teacher Specific Module <i>Directions: 20 percent of the content can be modified by the course teacher</i>	12 hrs

Text Books:

1. Atwal, A.S. (1993) Agricultural Pests of India and Southeast Asia. Kalyani Publishers, New Delhi.
2. Dawes, J.A. (1984) The Freshwater Aquarium, Roberts Royce Ltd. London.
3. Jaiswal, V. and Jaiswal, K. (2014) Economic Zoology, PHI learning.
4. Pradeep, V.J (2008) Textbook of Applied Zoology, Discovery Publishing.



5. Ravindranathan, KR (2013) A Textbook of Economic Zoology, Wisdom Press.
6. Shukla, G.S. and Upadhyay, V.B 2002: Economic Zoology, 4e, Rastogi.
7. Singh, S. Beekeeping in India, ICAR.
8. Srivastava, C.B.L. (2002): Fishery Science and Indian Fisheries, Kitab Mahal.
9. Yadav, M. (2013) Economic Zoology, Discovery publishing.

References

1. Banerjee, G.C. (2000). A Text Book of Animal Husbandry. Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.
2. Chatterjee, K.D. (2009) Parasitology: Protozoology & Helminthology. CBS Publishers.
3. Dokuhon, Z.S. (1998). Illustrated Textbook on Sericulture. Oxford & IBH Publishing Co., Pvt. Ltd. Calcutta.
4. Foley, R.C., Bath, D.L., Dickinson, F.N. and Tucker, H.A. (1973). Dairy Cattle: Principles, Practices, Problems, Profits. Lea & Febiger, Philadelphia.
5. Gupta, S.K. & Gupta, P.C. General and Applied Ichthyology (Fish & Fisheries). S. Chand & Co. Ltd., New Delhi.
6. Khanna, S.S. and Singh, H.R. A Textbook of Fish Biology & Fisheries Published by Narendra Publishing House. 3rd Edition. (ISBN 13: 9789384337124)
7. Tembhare, D.B. (2017) Modern Entomology. Published by Himalaya Publishing House.
8. www.agritech.tnau.in.
9. www.cifri.res.in
10. <https://krishijagran.com/animal-husbandry/how-to-do-profitable-commercial-rabbit-farming-in-india/>
11. Swayam.gov.in. Applied and Economic Zoology.

Assessment Rubrics:

Evaluation Type		Marks
1. End Semester Evaluation		70
2. Continuous Evaluation		30
Continuous Evaluation		
Theory	Method of Assessment	Marks
a)	Test paper I	6
b)	Test paper II	6
c)	Viva-Voce	6
d)	Assignment	6
e)	Seminar	6
		Total – 30 marks



Employability

- Jobs in the field of epidemic surveillance and control and pest control.
- Self-employment in the field of Animal husbandry, Poultry and Aquaculture.
- Research Institutions and Universities: Opportunities in research and scientific roles in identification of pests and parasites, developing novel methods in Animal husbandry and aquaculture.
- Industry: Opportunities in fisheries management, aquaculture, marine technology, dairy, poultry and eco-tourism ventures.
- Education and Communication: Career paths in teaching, science communication, media.

