Name of the Programme: **M.Sc. Zoology**
Course Code: ZOO-617 **Title of the Course:** Vector Biology
Number of Credits: 02
Effective from AY: 2023-24

Pre-requisites for the Course:	Basic working knowledge of insect taxonomy, vector-host interaction and arthropodology	
Course Objectives:	1. To extend an in-depth understanding of current emerging vector-borne infectious diseases. 2. To analyze how vector biology is integral to our public health interventions. 3. To build a comprehensive knowledge of the modern field of vector biology concerning the genomics and proteogenomic of vectors. 4. To create and communicate knowledge on vector-host interaction, mosquito-linked diseases, their cause and prevention.	
Content:	**Module 1** Introduction to vector biology and its importance in public health management. Arthropods as disease vectors, taxonomy, classification, biology, ecology. Arthropod transmitting bacteria and viruses of medical importance; Major vector-borne diseases; Vector-parasite interaction; Host-pathogen interaction; Factor in disease transmission. Special reference to mosquitoes as vectors, Biology, Bio-ecology, Life history of Anopheles, Culex, and Aedes mosquitoes, Mosquito-borne diseases like malaria, filariasis, dengue, Chikungunya, and Japanese encephalitis (Symptoms, prophylaxis, and treatment) **Module 2** General Characters, classification, history, distribution, morphology, biology, life cycle, mode of infection, signs, and symptoms, diagnosis, molecular biology, drug resistance, treatment, preventive measures, and control of - Flies, Bugs, Fleas, Ticks, And Lice.	2 hours 4 hours 4 hours 5 hours 8 hours

	Modern vector biology; Genomics and Proteogenomic of vectors. Chemical and biological and environmental control of vectors; Integrated vector management, vector resistance mechanism.	7 hours
Pedagogy:	Lectures/Tutorials/Videos/Assignments/Group discussion/Self-study.	
References/ Readings:	1. M.W. Service, Medical Entomology for students, Cambridge University Press, UK,2012. 2. G. Mullen, and L.Durden, Medical and Veterinary Entomology, Academic Press, USA,2002. 3. E.D. Bruce, F. Eldridge, and J.D. Edman, Medical Entomology, Kluwer Academic Publishers, UK,2002. 4. M.S.Mani, General Entomology, Oxford and IBH Publishing Co., New Delhi, 1982. 5. G.K. Rathnaswamy, A Handbook of Medical Entomology and Elementary Parasitology, S. Vishwanath Pvt.Ltd., India, 1986. 6. H.A. Kahn, Introduction of Epidemiology Methods, Oxford University Press, New York,1983. 7. R.E. Snodgrass, Principles of Insect Morphology, Tata McGraw Hill publishing co. India, 1935. 8. D.S.Kettle, Medical and Veterinary Entomology, Cabi Press, USA,1984. 9. M.W. Service, Mosquito Ecology, Field sampling methods, Applied Science Publishing Ltd., London,1993. 10. W.C. Marquardt, Biology of disease vectors (2nd Edition), Doody Enterprises, Inc. USA,1996.	
Course Outcomes:	The learner will 1. Analyze individual components of vector-borne disease transmission using specific examples. 2. Elaborate on ecological, environmental, biological and genetic drivers that play a role in disease transmission. 3. Justify how globalization and human behaviours can have an impact on disease transmission. 4. Construct control measures and prophylaxis emphasising Integrated vector management practices.	

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