

B.SC. ZOOLOGY

Semester	Course Code	Course Category	Hours	Credits	Marks for Evaluation		
					CIA	ESE	Total
III	25UZOVAC1	Value Added Course-I	30	-	-	100	100
Course Title		ANIMAL HUSBANDRY AND PET ANIMALS					

SYLLABUS		
Unit	Contents	Hours
I	Introduction to Animal Husbandry Livestock breeds, Definition of breed, breed characters and Identification of age in animals - Housing systems - Rearing requirements (space, ventilation, food and water)	6
II	Livestock Production and Management Role of livestock in Indian agriculture. -classification of indigenous and exotic cattle– Sanitation and Farm waste disposal	6
III	Introduction to Pet Animals: Dogs as Pets, Dog Breeds, Nutrition, Behavior and Training -House cats, Cat Breeds, Nutrition and behavior – Care for caged birds and Tank fishes - Issues to consider for adopting a pet animals – Dog and Cat.	6
IV	Pet Animal Health: Parasites, Diseases and Control measures of common illness among pets (Dog-mites, Cat - Fleas)	6
V	Economics of Animal Husbandry: Livestock and their products in Indian economy - Economics of Dairy and Rabbit farming. Field visit to a Cattle farm.	6

TextBook(s):
1.G.C Banerjee. A Textbook of Animal Husbandry, Oxford & IBH Publishing, New Delhi, Pages,854&1147,2021. 2.T.N. Palanivelu. Animal husbandry & Veterinary Science, Rastogi Publishing, 2023
ReferenceBook(s):
1.Gyan Deep Singh. Animal Husbandary, Almol Publishing, 2008 2. Mathialagan P. Textbook of Animal Husbandry: Extension Education 4th edn (PB), 2020
WebResource(s):
1. https://www.dahd.gov.in/ 2. https://www.digitalisventures.com/press/notes-on-animal-health

Course Outcomes	
Upon successful completion of the course, students will be able to:	
CO No.	CO Statement
CO1	Understand and acquire knowledge on Choosing the right pet for their home for recreation
CO2	House, train and solve the behavioural problems of pet animals.
CO3	Take good care and groom their pets and keep them healthy
CO4	Apply and overcome health problems and emergencies that their pets may encounter at home.
CO5	Respect Animal Rights and develop (promote) cottage industry

Course Coordinator: Dr. P. RAJASEKAR

Semester	Course Code	Course Category	Hours	Credits	Marks for Evaluation		
					CIA	ESE	Total
V	25UZOVAC2	Value Added Course-II	30	-	-	100	100
Course Title		MEDICAL CODING FOR ZOOLOGISTS					

SYLLABUS		
Unit	Contents	Hours
I	INTRODUCTION TO MEDICAL CODING: Definition, purpose and Scope of medical coding - Importance of Medical Coding in Healthcare - Common medical codes (Dx, Tx, Fx, Rx & Sx) and abbreviations.	6
II	Basic Zoology concepts in Medical Coding Basic zoology concepts: species classification, anatomy, and physiology - Disease transmission: zoonoses and vector-borne diseases - The role of zoologists in clinical research and trials.	6
III	ICD-10 Coding System & Application Categories of ICD-10 codes - Code structure: letters, numbers, and coding guidelines - Coding for Infectious Diseases & Epidemics.	6
IV	Medical Procedures & Treatment Coding Veterinary vs. Human Medical Procedures - Coding for Laboratory & Diagnostic Tests - Commonly Used Medical Codes in Veterinary Studies.	6
V	Medical Coding Compliance, Ethical, Legal and Career Aspects Understanding coding compliance and regulations (HIPAA) - Ethical & Legal issues with coding for medical procedures involving animals - Career Opportunities in Medical Coding for Zoologists.	6

Text Book(s):
1. Medical Billing & Coding for Beginners, by Robin Peltonen . 2023. ISBN-13: 979-8865475071.
2. Medical Terminology & Anatomy for Coding-4E, by Betsy J. Shiland MS RHIA CCS CHDA CPC CPB CPPM , 2020.
Reference Book(s):
1. <i>Step-by-Step Medical Coding</i> – Carol J. Buck
2. <i>Medical Terminology for Health Professions</i> – Ann Ehrlich & Carol L. Schroeder
3. "Medical Coding: A Journey" by John S. Smith
4. "ICD-10-CM Coding: A Step-by-Step Guide" by Carline O. Rainey
5. "Zoology for Medical Coders" by Jennifer L. Benson
Web Resource(s):
https://www.researchgate.net/publication/354726497_MEDICAL_ZOOLOGY https://www.thevetiverse.com/en/latest/coding-technology-unlocking-veterinary-medicine-s-truepotential/

Course Outcomes	
Upon successful completion of the course, students will be able to:	
CO No.	CO Statement
CO1	Understand the significance of Medical Coding.
CO2	Apply medical terminology, human anatomy, and animal models in research.
CO3	Assess the various coding systems (ICD 10-CM, ICD-10-PCS, CPT) and their purpose in healthcare.
CO4	Apply the ethical standards and legal requirements pertinent to medical coding and billing practices.
CO5	Create awareness on the role of Medical Codes in Veterinary Studies and acquire employment opportunities in the field.

Course Coordinator: Dr. P. Dhanalakshmi

M.SC. ZOOLOGY

Semester	Course Code	Course Category	Hours/ Week	Credits	Marks for Evaluation		
					CIA	ESE	Total
III	25PZOVAC1	Value Added Course – I	30	-	-	100	100
Course Title		ARTIFICIAL INTELLIGENCE IN BIOLOGICAL SCIENCES					

SYLLABUS		
Unit	Contents	Hours
I	Basics of Artificial Intelligence Definition, History, and Key Concepts - Types : Narrow AI, General AI, and Artificial Superintelligence - AI in Science: Applications in Zoology and Environmental Biology - AI Tools Overview: Introduction to basic AI platforms like ChatGPT, Deep Seek, Google Colab, Gemini and Weka.	6
II	AI Applications in Taxonomy and Biodiversity AI for Species Identification and Taxonomy - Use of Machine Learning for Species Classification - AI for Biodiversity Monitoring and Conservation -AI Applications in Tracking of Wildlife and Habitat Monitoring	6
III	AI in Genomics and Disease Management AI in Genome Annotation and Sequence Analysis - AI in Disease Modeling and Epidemic Forecasting - AI for Vector-Borne Disease Monitoring - Dengue	6
IV	AI in Healthcare and BehavioralPattern AI Applications in Animal Health Diagnostics - Behavior Analysis of Animals Using AIAI-driven Prediction Models for Disease Outbreaks in Animal Populations –	6
V	Trends of AI and Ethical Considerations AI in Biosensors and Wearable Devices for Zoological Research - Role of AI in Climate Adaptation Strategies - Ethical Issues in AI-driven Zoological Research	6

Text Book(s):

1. Russell, S., &Norvig, P. (2020). *Artificial Intelligence: A Modern Approach*. Pearson Education.

Reference Book(s):

1. Min, S., et al. (2017). "Deep learning in bioinformatics." *Briefings in Bioinformatics*.
2. Esteva, A., et al. (2017). "Dermatologist-level classification of skin cancer with deep neural networks." *Nature*.
3. Chou, K. C. (2018). "Artificial intelligence in biological sciences." *Annual Review of Biosciences*.

Web Resource(s):

https://crsreports.congress.gov/product/pdf/R/R47849?utm_source=chatgpt.com
https://link.springer.com/article/10.1007/s10531-024-02977-9?utm_source=chatgpt.com
https://academic.oup.com/icb/article-abstract/64/3/953/7724392?redirectedFrom=fulltext&login=false&utm_source=chatgpt.com

Course Outcomes

Upon successful completion of the course, students will be able to:

CO No.	CO Statement
CO1	Understand how AI and machine learning models enhance classification and monitoring of species, contributing to biodiversity research and conservation.
CO2	Acquire knowledge of AI-based genome annotation, sequence analysis techniques, and predictive models for vector-borne disease outbreaks such as dengue.
CO3	Apply AI tools for real-time wildlife tracking, habitat monitoring, and developing conservation strategies for protecting biodiversity.
CO4	Understand the role of AI in diagnosing animal health issues and analyzing behavioral patterns for early disease detection and welfare management.
CO5	Acquire knowledge of emerging AI trends such as biosensors and climate adaptation strategies and apply the same in Zoological Research.

Course Coordinator: Dr. H. E. Syed Mohamed