



DEPARTMENT OF ZOOLOGY
MOHANLAL SUKHADIA UNIVERSITY
MAHARANA BHUPAL CAMPUS, UDAIPUR – 313 001(INDIA)

NAAC Accredited 'A' Grade University

PROF. ARTI PRASAD
HEAD

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Syllabus

(2020-21)

1. M.Sc. Zoology Semester Scheme (CBCS) (Revised)
2. P.G. Diploma in Public Health Entomology (Revised)
3. Certificate course in Organic Farming and Solid Waste Management through Vermitechnology
4. Certificate course in Mushroom Cultivation.
5. Proposal for Virtual Laboratory

SCHEME FOR VARIOUS COURSES RUN BY DEPARTMENT OF ZOOLOGY 2020-21

M.Sc. (CBCS) ZOOLOGY 2020-2021								
S. N.	STAGE	CODE	TOPIC	LTP	NO. OF CREDITS	MAX. MARKS		TOTAL
						UNI V EXAM	INT ASSES	
1	SEM.1	M1ZOO-01-CT-01	Biosystematics, Structure and Function of Invertebrates	3.1.0	4	80	20	100
2	SEM.1	M1ZOO-02-CT-02	Ethology and Evolution	3.1.0	4	80	20	100
3	SEM.1	M1ZOO-03-CT-03	Instrumentation and Techniques in Biology	3.1.0	4	80	20	100
4	SEM.1	M1ZOO-04-CT-04	Cell and Molecular Biology	3.1.0	4	80	20	100
1	SEM.2	M2ZOO-01-CT-05	Biodiversity and Conservation Biology	3.1.0	4	80	20	100
2	SEM.2	M2ZOO-02-CT-06	Environmental Toxicology	3.1.0	4	80	20	100
3	SEM.2	M2ZOO-03-CT-07	Developmental Biology	3.1.0	4	80	20	100
4	SEM.2	M2ZOO-04-CT-08	Animal Physiology and Immunology	3.1.0	4	80	20	100
1	SEM.3	M3ZOO-01-CT-09	Vertebrates	3.1.0	4	80	20	100
2	SEM.3	M3ZOO-02-CT-10	Biostatistics, Computational Biology and Bioinformatics	3.1.0	4	80	20	100
1	SEM.4	M4ZOO-01-CT-11	Applied Zoology	3.1.0	4	80	20	100
2	SEM.4	M4ZOO-02-CT-12	Animal Biotechnology	3.1.0	4	80	20	100
CORE COURSE PRACTICAL								
S. N.	STAGE	CODE	TOPIC	REMARKS				
1	SEM.1	M1ZOO-05-CP-01	Practical -I	0.0.8	4	80	20	100
2	SEM.1	M1ZOO-06-CP-02	Practical-II	0.0.8	4	80	20	100
1	SEM.2	M2ZOO-05-CP-03	Practical-I	0.0.8	4	80	20	100
2	SEM.2	M2ZOO-06-CP-04	Practical-II	0.0.8	4	80	20	100
1	SEM.3	M3ZOO-05-CP-05	Practical-I	0.0.8	4	80	20	100
2	SEM.4	M4ZOO-06-CP-06	Practical-I	0.0.8	4	80	20	100
DISCIPLINE SPECIFIC COURSES THEORY & PRACTICAL (SEM. III)								
S. N.	STAGE	CODE	TOPIC	REMARKS				
1	SEM.3	M3ZOO-03-ET-01A	Entomology and Insect Toxicology-I	3.1.0	4	80	20	100
2	SEM.3	M3ZOO-03-ET-01B	Wild life Biology-I	3.1.0	4	80	20	100
3	SEM.3	M3ZOO-03-ET-01C	Limnology and Fisheries-I	3.1.0	4	80	20	100
4	SEM.3	M3ZOO-04-ET-02A	Entomology and Insect Toxicology-II	3.1.0	4	80	20	100
5	SEM.3	M3ZOO-04-ET-02B	wild life Biology-II	3.1.0	4	80	20	100
6	SEM.3	M3ZOO-04-ET-02C	Limnology and Fisheries-II	3.1.0	4	80	20	100
7	SEM.3	M3ZOO-05-EP-01A	Entomology and Insect Toxicology (Practical-II)	0.0.8	4	80	20	100
8	SEM.3	M3ZOO-05-EP-01B	Wild life Biology (Practical-II)	0.0.8	4	80	20	100

9	SEM.3	M3ZOO-05-EP-01C	Limnology and Fisheries (Practical-II)	0.0. 8	4	80	20	100
			DISCIPLINE SPECIFIC COURSES THEORY & PRACTICAL (SEM. IV)					
1	SEM.4	M4ZOO-03-ET-01A	Entomology and Insect Toxicology-I	3.1. 0	4	80	20	100
2	SEM.4	M4ZOO-03-ET-01B	Wild life Biology-I	3.1. 0	4	80	20	100
3	SEM.4	M4ZOO-03-ET-01C	Limnology and Fisheries-I	3.1. 0	4	80	20	100
4	SEM.4	M4ZOO-04-ET-02A	Dissertation	3.1. 0	4	80	20	100
5	SEM.4	M4ZOO-04-ET-02B	Dissertation	3.1. 0	4	80	20	100
6	SEM.4	M4ZOO-04-ET-02C	Dissertation	3.1. 0	4	80	20	100
7	SEM.4	M4ZOO-06-EP-02A	Entomology and Insect Toxicology (Practical-II)	0.0. 8	4	80	20	100
8	SEM.4	M4ZOO-06-EP-02B	Wild life Biology (Practical-II)	0.0. 8	4	80	20	100
9	SEM.4	M4ZOO-06-EP-02C	Limnology and Fisheries (Practical-II)	0.0. 8	4	80	20	100
			SKILL DEVELOPMENT/CERTIFICATE COURSES (SEM II)					
10	SEM.2	M2ZOO-SE-01A	Vermitechnology and Solid Waste management	0.0. 4	2	80	20	100
10	SEM.2	M2ZOO-SE-01B	Bee Keeping	0.0. 4	2	80	20	100
10	SEM.2	M2ZOO-SE-01C	Sericulture	0.0. 4	2	80	20	100
10	SEM.2	M2ZOO-SE-01D	Mushroom culture	0.0. 4	2	80	20	100
10	SEM.2	M2ZOO-SE-01E	Tools and Techniques in Wildlife Assessment	0.0. 4	2	80	20	100
			SKILL DEVELOPMENT/ CERTIFICATE COURSES (SEM IV)					
11	SEM.4	M4ZOO-SE-01A	Vermitechnology and Solid Waste management	0.0. 4	2	80	20	100
11	SEM.4	M4ZOO-SE-01B	Bee Keeping	0.0. 4	2	80	20	100
11	SEM.4	M4ZOO-SE-01C	Sericulture	0.0. 4	2	80	20	100
11	SEM.4	M4ZOO-SE-01D	Mushroom culture	0.0. 4	2	80	20	100
11	SEM.4	M4ZOO-SE-01E	Tools and Techniques in Wildlife Assessment	0.0. 4	2	80	20	100

POST GRADUATE DIPLOMA PUBLIC HEALTH ENTOMOLOGY (2020-21)

S.N.	STAGE	CODE	TOPIC	LTP	NO. OF CREDITS	MAX. MARKS		TOTAL
						UNI V EX AM	INT ASS ES	
1.	SEM 1	DPHE 1-CT-01A	Anophelines & Culicines and their medical importance	3.1. 0	4	80	20	100
2.	SEM 1	DPHE 1-CT-02A	Sand flies, Black flies, Muscoid flies and their medical Importance	3.1. 0	4	80	20	100
3.	SEM 1	DPHE 1-CT-03A	Other Arthropods of Medical and Veterinary Importance	3.1. 0	4	80	20	100
4.	SEM 1	DPHE 1-CT-04A	Integrated Methods of Vector Management	3.1. 0	4	80	20	100
5.	SEM 1	DPHE 1-CP-01A	Practical I (Paper IA and IIA)	0.0. 8	4	80	20	100
6.	SEM 1	DPHE 1-CP-02A	Practical II (Paper IIIA and IVA)	0.0. 8	4	80	20	100
7.	SEM 2	DPHE 2-CT-05B	Anophiline and Culicine Diagnosis ,treatment and prognosis	3.1. 0	4	80	20	100
8.	SEM 2	DPHE 2-CT-06B	Sand flies, Black flies, Muscoid flies and the Diagnosis ,treatment and prognosis	3.1. 0	4	80	20	100
9.	SEM 2	DPHE 2-CT-07B	Other Arthropods of Medical and Veterinary Importance Diagnosis, treatment and prognosis	3.1. 0	4	80	20	100
10.	SEM 2	DPHE 2-CT-08B	Biological & Environmental Methods for the Control of Vectors_Diagnosis ,treatment and prognosis	3.1. 0	4	80	20	100
11.	SEM 2	DPHE 2-CP-03B	Practical III (Paper IB and IIB)	0.0. 8	4	80	20	100
12.	SEM 2	DPHE 2-CP-04B	Practical IV (Paper IIIB and IVB)	0.0. 8	4	80	20	100

Newly proposed certificate courses (2020-21)

S.N.	STAGE	CODE	TOPIC	LTP	NO. OF CREDITS	UNIV EXAM	INT ASSES	TOTAL
ORGANIC FARMING AND SOLID WASTE MANAGEMENT THROUGH VERMITECHNOLOGY								
1.		CC VT-CT01	Biology of Earthworms		NA			50
2.		CC VT CT - 02	Vermitechnology and Solid Waste Management		NA			50
3.		CC VT CP01	PRACTICAL		NA	75	25	100
MUSHROOM CULTIVATION								
1.		CC MC-CT01	Mushroom Cultivation Techniques		NA			50
2.		CC MC-CT02	Harvest and post harvest technology and Mushroom farm management		NA			50
3.		CC MC-CP01	PRACTICAL		NA	80	20	100

M. Sc. ZOOLOGY: 2020–2021

(CBC System)

Course Code-M1 ZOO 01CT-01 No of Credits-4

Paper I: Biosystematics, Structure and Function of Invertebrates

UNIT – I

Biosystematics: Basic concepts of Taxonomy; Rules of nomenclature; Basis of invertebrate classification; Hierarchy of categories; Molecular Cytotaxonomy: Importance of cytology and genetics in taxonomy.

UNIT – II

Body plans; Coelom, Symmetry, Metamerism

Locomotor mechanisms: Amoeboid locomotion; Ciliary locomotion; Flagellar locomotion; Non-jointed appendages; Jointed appendages

UNIT – III

Feeding apparatus of Invertebrates

Feeding and Digestion: Microphagy, Macrophagy; Herbivores, Omnivores, Carnivores, Filter feeding; Ciliary feeding,

Digestion: intracellular and extracellular digestion.

UNIT – IV

Endocrine system: Neurosecretory cells; Endocrine structures in invertebrates; Role of hormones in moulting and metamorphosis in Insects and Crustaceans.

UNIT – V

Reproduction: Asexual reproduction; Parthenogenesis; Sexual reproduction. Metagenesis in Coelenterates. Regeneration in Invertebrates; Larval forms of invertebrates and their significance

M. Sc. ZOOLOGY: 2020–2021

(CBC System)

Course Code-M2 ZOO05- CP03 No of Credits-4

Practical – I

(Paper I and II)

1. Visit to natural habitats and protected areas and wetlands of Rajasthan for detailed study: Student should submit the report on the study covering major fauna, flora and geography.
2. Locating the hotspots and biosphere reserves on the map of the world.
3. Determination of population density of animals, species dominance and frequency using quadrant/plot method.
4. Analysis of habitat characteristics (gbh/dbh, tree height, canopy volume).
5. Analysis of species diversity using diversity indices.
6. Study of various modes of seed dispersal.
7. Study of various modes of pollination.
8. Identification and comments on spots of endangered species: Leatherback sea turtle, gharial, great Indian bustard, long billed vulture, Siberian crane, Nilgiri langur, Royal Bengal tiger, Asian elephant, blue whale, Indian Rhinoceros .
9. Preparation of serial dilution of doses and study of bio-safety equipments
10. Determination of LC50 and LC 90 using insect as a model
11. Bioassay of different bio-pesticides with different mode of actions against pests/vectors
12. Toxicity and adulteration testing in food products
13. Residual toxicity test with bio insecticide.
14. Effect of toxicants on chromosomes of animal
15. Effect of toxicants on animal tissues (histopathology)
16. Report on any one type of Occupational hazardous event of past

M. Sc. ZOOLOGY: 2020–2021

(CBC System)

Course Code-M4ZOO04ET -02A No of Credits-4

DISSERTATION

M. Sc. ZOOLOGY: 2020–2021

(CBC System)

Course Code-M4ZOO 04ET -02B No of Credits-4

DISSERTATION

M. Sc. ZOOLOGY: 2020–2021

(CBC System)

Course Code-M4ZOO 04ET -02C No of Credits-4

DISSERTATION

M. Sc. ZOOLOGY: 2020–2021

(CBC System)

Course Code-M4ZOO06-CP06 No of credits-4

Practical- I

(Paper I & II)

1. Rearing/ life cycle and identification of medically important insects and pests
2. Identification of various fishing crafts and gears
3. Identification of various cultivable of major carps
4. Demonstration of Life cycle of honey bee and silkworm.
5. Study of permanent slides of disease causing protozoans
6. Study of permanent slides of Diseases causing helminthes.
7. Study of permanent slides of Diseases causing arthropods.
8. Vermicomposting of waste by earthworm species.
9. DNA isolation and DNA quantification
10. Agarose gel electrophoresis for DNA, RNA and protein.
11. Blotting techniques for DNA/RNA protein.
12. Preparation of dot blot- slot blots.
13. Extraction of genomic DNA from a mammalian tissue.
14. Techniques based on PCR.
15. Any other technique based on syllabus.