

Unified Syllabus of Zoology for U.P. State Universities

B.Sc. Part III-2019-20 onwards.

There will be three written papers and one practical examination each year.

Question No. 1 in each class will be compulsory & comprehensive based on units I to IV and of short Answer type. This will carry 40% of total marks (*i.e. 20 marks in I & II year and 30 marks in III year*). There will be two questions from each unit carrying 60% of the marks, of which one question from each unit has to be attempted.

B.Sc. III (Zoology)		
Papers	Title of paper	Max. Marks
Paper I	Applied and Economic Zoology	75
Paper II	Biological Tools, Techniques and Immunology	75
Paper III	Environmental Biology and Animal Behaviour,	75
Practical	Practical Syllabus based on theory papers	75

B. Sc. Part III (THEORY) Zoology-2019-20 onwards

There will be three written papers and one practical examination. The following courses are prescribed.

PAPER-I Applied and Economic Zoology

Unit-I

Parasitology:

- (a) Structure, life cycle, Pathogenicity, including diseases, causes, symptoms and control of the following parasites of domestic animals and humans: *Trypanosoma*, *Entamoeba*, *Plasmodium*, *Diphyllobothrium*, *Hymenolepis*, *Dracunculus*, *Wuchereria*, *Paragonimus*, *Fasciolopsis*.
- (b) Plant Nematodes, nature of their damage and control measures including *Meloidogyne*.

Unit-II

Vectors and pests:

Vectors like mosquito, house fly, bed bug, louse and their control.

Pest, types, characteristic features, life cycle, nature of damage and control of termite, cockroach, cloth moth, grain moth, wax moth, gundhi bug, sugarcane leaf-hopper and rodents

Unit-III

Animal culture: Aquaculture, Pisciculture, Poultry, Sericulture, Apiculture, Lac-culture.

Unit-IV

Microbiology: Morphology, physiology, life cycle of and infection (outline) by bacteria (special reference to *E.coli*) and viruses (special reference to bacteriophage and HIV). Bacterial and viral diseases.

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PAPER-III Environmental Biology and Animal Behaviour

Unit-I

Ecology: Ecosystem: Concept, components, structure and fundamental operations (energy flow, food-chain, food webs and trophic levels, ecological niche, abiotic and biotic factors).
Population: Characteristics, and regulation. Ecological succession. **Adaptation:** Aquatic, terrestrial, aerial and arboreal.

Unit-II

Pollution and Toxicology: Concept, sources, types (air, water, soil, noise, radiation and light), and control of environmental pollution. Greenhouse effect, depletion of ozone layer, global warming, acid rain. Exposure of toxicants (routes of exposure, and duration and frequency of exposure); dose-response relationship categories of toxic effects.

Unit-III

Wild Life of India: Modern concept (IUCN categories), biodiversity hot spots. Important sanctuaries; national parks of India; Different projects launched for the preservation of animal species; in-situ and ex-situ conservation of wild life. Man-animal conflict

Unit-IV

Animal Behaviour: Introduction to Ethology, Patterns of behaviour (taxes, reflexes, instinct, motivation, fixed action patterns).. Biorhythms; learning and memory; Migration of fishes & birds.

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Unified Syllabus of Zoology for U.P.State Universities
Subject- Zoology
B.Sc. - Third Year-2019-20 onwards
Practical

1-	Dissection (Major)	12 Marks
2-	Permanent Mounting	06 Marks
3-	Temporary Mounting	05 Marks
4-	Identify and Comment upon Spots (1-8)	16 Marks
5-	Economic Zoology (<i>Comments on a suitable Specimen/ life cycle of Silk worm, Honey bee, Lac insect & Food Fishes</i>) (02)	06 Marks
6-	Biological Tools and Techniques (<i>Comment</i>)	06 Marks
7-	Biostat / Microbiology / Immunology / Behaviour / Biochemistry/Cytology /Embryology	06 Marks
8-	Ecology/ Pollution/ Toxicology (Exercise or Comment/	06 Marks
9-	<i>Viva-voce</i>	06 Marks
10-	Practical Class record , Project / Collection	04+02 Marks
		Total 75 Marks

B.Sc. Part III

ZOOLOGY PRACTICAL SYLLABUS-2019-20 onwards

Permanent Preparation of: *Euglena*, *Paramecium* and rectal protozoans from frog.

Stool examination for different intestinal parasites

Monocystis : Examination of contents of seminal vesicles of *Pheretima* or *Eutyphoeus* for different life- history stages and permanent preparation. Prepared slides.

Plasmodium : Preparation of blood film (Leishman's stain). Prepared slides showing the parasites

Study of prepared slides/ specimens of *Entamoeba*, *Giardia*, *Leishmania*, *Trypanosoma*, *Plasmodium*, *Fasciola*, *Cotugnia*, *Taenia*, *Rallietina*, *Polystoma*, *Paramphistomum*, *Schistosoma*, *Echinococcus*, *Dipylidium*, *Enterobius*, *Ascaris* and *Ancylostoma*;

Permanent Preparation of *Cimex* (bed bug)/ *Pediculus* (Louse), *Haematopinus* (cattle louse), fresh water annelids, arthropods; and soil arthropods.

Larval stages of helminths and arthropods.

Permanent mount of wings, mouth parts and developmental stages of mosquito and house fly.
Permanent preparation of ticks/ mites, abdominal gills of aquatic insects viz. *Chironomus* larva, dragonfly and mayfly nymphs, preparation of antenna of housefly.

Collection and identification of pests.

Life history of silkworm, honeybee and lac insect.

Different types of important edible fishes of India.

Prepared slides of plant nematodes.

Demonstration of counting of cells (blood and protozoan) by haemocytometer, haemoglobinometer, pH meter, Colorimeter

Microbiological Techniques: Media Preparation and sterilization, inoculation and Examination.

Staining of bacteria.

Study of an aquatic ecosystem, its biotic components and food chain.

Preparation of chromosomes, Test for carbohydrate Photochemical demonstration of proteins and lipids, using hand sections. Endocrine glands (Neurosecretory cells) of cockroach.

Demonstration of developmental stages of chick.

Project Report/ model chart making.

Dissection:

(a) *Periplaneta*

External characters. Differences between male and female.

Dissections.

Circulation of blood in the wing of cockroach.

Glycerine preparation of mouth appendages, salivary glands and trachea.

Permanent preparations of salivary glands, Malpighian tubules, ovaries and testes.

Wallago: Afferent and efferent branchial vessels, Cranial nerves, Weberian ossicles.

Practical exercises based on Biostatistics, Microbiology, Immunology, Biotechnology, Animal Behavior, Pollution & Toxicology.