

B.Sc. Zoology

F.Y.B.Sc.I	Lower Non Chordata (Protozoa-Helminthes)	I CO I. To provide Knowledge about Protozoan to Helminthes animals.
	Paper I	CO ₂ To Learn about Unicellular to multicellular animals body organization and systems.
		CO ₃ To Understand about pathogenicity of Protozoa and Helminthes animals.
		CO ₄ To Learn about Locomotion, Nutrition, Reproduction and Polymorphism of Lower invertebrates
FY. B.Sc. I	Higher Nonchordates (Annelida to Echinodermata) Paper II and	CO ₁ To learn about Segmentation, Joint appendages and systems of Annelida to Echinodermata animals.
		CO ₂ To Study about beneficial insects and Type of matter parts development.
		CO ₃ To learn about larval forms and hosts.
F.Y. B.Sc. I	Cell Biology and Genetics Paper III	CO ₁ To understand the cell and cell organelles.

	rd	C02 This course introduces basic Mendelian inheritance
FY B.S.C. I	Practical	C01 This course helps in Understanding of morphological characters and classification of different body parts of animals.
		C02 To study permanent preparation of different body parts of animals.
		C03 To learn how cells are divided by study mitosis.
FY B.S.C.I.	Chordata Paper Ist	C01 To learn about Protochordates, Affinities with lower and Higher chordates
		C02 To learn about classification of different class of vertebrates (Pisces, Amphibia, Reptilia, Aves, Mammals).
		C03 students will learn Comparative study of vertebrates
		C04 To study about poisonous and Non poisonous snakes and biting mechanism, Parental care in Amphibia and dentition in Mammals.

FY B.Sc. II (annual)	Animals distribution, Evolution and development Biology Paper II nd	C01 TO learn about evolution and information of Biogeographical relation of the animal.
		C02 To study Gametogenesis and Development of check Embroyology
		C03 To learn about diff spcies, Raleo Zoology and related theorises.
FY B.Sc. II (Annual)	Physionlogy and Biochemistrytry Paper III	C01 To learn about various physiological and Biochemical reactions in Animals.
		C02 To study physiology of endocrine glands and The rmoregulation one of animals.
		C03 To learn about about classification of carbohy drates and hipids, Protenis, Enzymes and Nuclicaid.
FY B.Sc. II (Annual)	Pratical	C01 to study morpholical characters by museum sps and prepared slides of Vertebrates.
		C02 To Provide pratical Knowledge about bloodgroup and Biochemical analysis.

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FY B.Sc III (Annual)	Applied and Economic Zoology Paper I	C01. To learn about Parasitology, Vectors and Pests and their Pathogenicity, life Cycle, Control etc.
		C02. To study Aquaculture, sericulture, Dairy, Lacculture for their economics importance.
		C03. To provide Knowledge about wild life conservation and Biodiversity, solid waste management.
FY. B.Sc. III (Annual)	Biotechnology, Immunology, Biological tools	C01 Students will get knowledge of Application of Biotechnology Genetic engineering concepts and areas.
	Techniques and Biostatistics Paper II	C02 To learn about concepts of immunity and immune system, vaccines of different diseases.
		C03 To study of Biological Tools and Techniques their Principal uses and application.
		C04 To study of collection and classification of data, distributions and Graphical representation of data.
FY. B.Sc. III (Annual)	Ecology, Microbiology, Animal, behaviour, pollution and Toxicology	C01 To study of Ecosystem, Population characteristics and ecological succession, ecological adaptation.
		C02 To learn about Microbiology, infection of bacteria, Viruses and Microbial biotechnology
		C03 To learn about Ethological Patterns, Biorythms, migration, orientation, mimicry and neural, hormonal control of behaviour.

	(PaperIII)	CO4 To provide Pratical Knowledge of Types of Pollution, control and role of remote senseing, Biological indicators.
FY. B.Sc, III (Annual)	Practical	CO1 To provide Pratical Knowledge of beneficial insects life cycle and moths and slide study of parasitic nemate.
		CO2 To provide study visit of National Park, Santuries for making project report.

PSOS ZOOLOGY

1. Analyze, plan and apply the Applied knowledge in Animal sciences.
2. Apply knowledge of Animals, Insects, Birds and Reptiles for the benefits of Society.
3. To inculcate Interest of the Students in Animal Science by giving direct exposure in the field.
4. To inculcate Conceptual understanding in Animal Science by field visits.
5. Development of appropriate practical skills with commercial approach.
6. To inculcate conceptual understanding in animal sciences by field

M.Sc ZOOLOGY COURSE OUT COME

Class	Paper	Course
M.Sc Sem I	Paper-I Non Chardata	<ol style="list-style-type: none"> 1. To understand various life forms of invertebrates. 2. To study inter-relationship of various animal phyla with each other.
	Paper II Biostatitics, Evolution and Principles	<ol style="list-style-type: none"> 1. To provide knowledge about the use of statistics. In analyzing zoological data. 2. Evolution will give information of Biogeographical relation of animal earn basic of animal classification and role of animal taxonomy. 3. Learn the basic principles of classification and nomenclause and data used in the classification
	Paper III Biological chemistry	<ol style="list-style-type: none"> 1. Course will help to learn biomalecules like Protein Amino auids Carbohhybrates etc. 2. To understand biochemical and physiological process in cell. 3. Course will help ls Learn structure of
	Paper IV Cylogenetics Classical and Moleculer	<ol style="list-style-type: none"> 1. To study cell structure and physiology. 2. To understand gene regulation. 3. To understand basic of heredity and recombination.

M.Sc. Zoology

Class	Paper	Course Out come
M.Sc. II Sem	Paper-I Ecology and Enviournmental Enviornmental Biology	<ol style="list-style-type: none"> 1. To again knowledge about ecosystem. 2. To understand the various causes of environmental plution and remedial measure. 3. To study the biodictors and Environmental moniloring 4. To study various Laws and Programmes hormone aaction, Regulation of hormone.
	Paper II Compartive Animal Physiology	<ol style="list-style-type: none"> 1. To gain comparative knowledge of various physiological process(like digestion, Excretion, etc) in different groups animals. 2. To gain knowledge of endocrine system of different vertebrates and mechanism of hormone action, Regulation of hormone.
	Paper- III Animal Behaviour	<ol style="list-style-type: none"> 1. To knew about different behavioral patterns of animals 2. This will help in wild-life conservation and behamiorol researches on animals. 3. Helpful in mars-culture.
	Paper IV Technignes and Tools in Biology	<ol style="list-style-type: none"> 1. To understand the application various technignes in Zoology. 2. Learn Basic haematology technignes used in daliy

		<p>lives.</p> <p>3. To learn preparing thin sections and principles of staining.</p>
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Class	Paper	Course Outcome
M.Sc. III Sem	I- Chardata	<ol style="list-style-type: none"> 1. To study various life forms of vertebrates. 2. Learn affinities of various phylum/classes of vertebrates with each- other. 3. To study behariral aspects (e.g. parental care, migration, neateny in vertebrates.
	II Animal development and marphogenesis	<ol style="list-style-type: none"> 1. Learn basics and impkortance of developmental biplogy8. 2. Study various steps of devolpment of an embryo. 3. Study the formation of various argans. 4. Study devolpment of some groups of animal in detail.
	III Biotechnology and Molecular Biology	<ol style="list-style-type: none"> 1. To understand the role of biotechonology for the society. 2. Provide knowledge of commercial preparation of drugs. 3. Understand prokaryotic and eukaryotic cell gene regulation. 4. Learn the Central-Dogma in molecular biology.
	IV- Fisherly- biology- Marphology, Pysicology, and Development of	<ol style="list-style-type: none"> 1. To understand the habit, habital and morphology, Anatomy and physiology of fishes.. 2. It will help in large scale fish farming. 3. Helpful in fish marketing.

	Fishes	
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Class	Name of Paper	Course Out come
M Sc. IV Sem	Paper- I Comparative Anatomy and molecular endoeinology	<ol style="list-style-type: none"> 1. Students will study anatomy of various argans and compare them with other groups of Vertebrates. 2. Students will gain knowledge of enmdocrine system and their functioning in detail. 3. Students will also know the mechanism of harmone action and regulation of harmone secretion.
	Paper II Economic Zoology and Wild-life	<ol style="list-style-type: none"> 1. To give a detail knowledge of economically harmful and beneficial insects/animals. 2. To make students aware of application of Zoology in various industries 3. To give knowledge of wild life and their conservation. 4. To make students aware about conservation and sustainable use of biodiversity.
	Paper III (a) Fishery Biology- Taxonomy and ecology of fishes	<ol style="list-style-type: none"> 1. To provide a detail knowledge of fishes found in various regions of india and their adaptations. 2. To provide knowledge of various environmental factors affecti9ng fish population.
	Paper-IV (a) Fishery Biology	<ol style="list-style-type: none"> 1. To provide detail knowledge about riverine, marine and brackish water fishes of India. 2. To study fish packaging and fish marketing.

	Applied Ichhology	3. To gain knowledge abnout fish culture methods.
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Programme Out come

(M.Sc. Zoology)

1. Analyze, plan and apply the Applied knowledge in Animal Sciences.
2. Apply knowledge of insects/pests for the management/control of insects/pests which otherwise destroy our crops.
3. Apply their knowledge for the culture of fishes/Labeters/Prawns etc.
4. Apply and plan mass production


प्रचार्य
हेमवती नंदन बहुगुणा राष्ट्रीय
स्नातकोत्तर महाविद्यालय
मैत्री-प्रयागराज