JLN Govt. College Haripur at Manali, Dist. Kullu (H.P.)

Name of the Department: **Zoology**

Year of establishment: **2014**

Names of Programmes/ Courses: **UG**

No. of Teaching posts sanctioned: **01**

No. of Teaching posts filled: **01**

Faculty:

Sr. No.	Name	Qualification	Designation	Experience
1.	Ms. Monika	M.Sc. (2005), M.Phil. (2006), CSIR-JRF/NET (2004)	Assistant Professor	12+ Years

Course Structure: B.Sc. with Zoology

(UG Yearly Programme w.e.f. July, 2018)

Year	Course Type	Course Code	Course Title	Credit
I	CORE COURSE DSC IA	ZOOL 101 TH	Animal Diversity (Theory)	4
		ZOOL 101 PR	Animal Diversity (Lab)	2
	CORE COURSE DSC IB	ZOOL 102 TH	Comparative Anatomy and Developmental Biology of Vertebrates (Theory)	4
		ZOOL 102 PR	Comparative Anatomy and Developmental Biology of Vertebrates (Lab)	2
II	CORE COURSE DSC IC	ZOOL 201 TH	Physiology and Biochemistry (Theory)	4
		ZOOL 201 PR	Physiology and Biochemistry (Lab)	2
	CORE COURSE DSC ID	ZOOL 202 TH	Genetics and Evolutionary Biology (Theory)	4
		ZOOL 201 PR	Genetics and Evolutionary Biology (Lab)	2
	SEC I	ZOOL 203 TH	Medical Diagnostics (Theory)	4
	SEC II	ZOOL 204 TH	Apiculture (Theory)	4
III	DISCIPLINE SPECIFIC ELECTIVE COURSE DSE IA (Choose any one from three)	ZOOL 301(A) TH	Applied Zoology (Theory)	4
		ZOOL 301(A) PR	Applied Zoology (Lab)	2
		ZOOL 301(B) TH	Animal Biotechnology (Theory)	4
		ZOOL 301(B) PR	Animal Biotechnology (Lab)	2
		ZOOL 301(C) TH	Aquatic Biology (Theory)	4
		ZOOL 301(C) PR	Aquatic Biology (Lab))	2
	DISCIPLINE SPECIFIC ELECTIVE	ZOOL 302(A) TH	Insect, Vector and Diseases (Theory)	4

	COURSE **DSE IB** **(Choose any one from three)**	**ZOOL 302(A) PR**	**Insect, Vector and Diseases (Lab)**	**2**
		ZOOL 302(B) TH	**Immunology (Theory)**	**4**
		ZOOL 302(B) PR	**Immunology (Lab)**	**2**
		ZOOL 302(C) TH	**Reproductive Biology (Theory)**	**4**
		ZOOL 302(C) PR	**Reproductive Biology (Lab)**	**2**
	SEC III	**ZOOL 303 TH**	**Sericulture (Theory)**	**4**
	SEC IV **(Choose any one from two)**	**ZOOL 304(A) TH**	**Aquarium Fish Keeping (Theory)**	**4**
		ZOOL 304(B) TH	**Research Methodology**	**4**

Department of Zoology

JLN Govt. College Haripur at Manali (H.P.)

"The love for living creatures is the most noble attribute of a man."

-Charles Darwin

Zoology is one of the most interesting and sought- after interdisciplinary subjects in science. It makes students to understand structure, behavior, evolutionary processes, relationship among diverse group of animals, their relation with nature using variety of outlooks from genes to molecular and cellular biology, physiology, anatomy, taxonomy and ecology to name a few.

The department was established in 2014 with sole purpose of providing quality education to students, contributing towards their holistic progress with the help of well-designed course work and co- curricular programmes.

Programme objectives:

- To provide a strong foundation of the subject.
- To inculcate sense of responsibility in students towards nature and to make them understand the need to explore and conserve the diverse groups of fauna.
- To develop curiosity, knowledge, research temperament and attitude necessary to pursue further higher studies in the various fields of the subject so that they can use the knowledge and skills for betterment of society and human race.
- To promote awareness and conceptual skill with training programmes in the areas of cell and molecular biology, cytogenetics, physiology, taxonomy, anatomy, population biology and other sub- disciplinary areas of the subject.
- To train students so that they can apply themselves meaningfully in activities requiring zoological expertise.
- To attain the holistic growth of students and to prepare them for futuristic postgraduation programmes and various competitive examinations.
- To inculcate in students critical thinking and analytical skills.

Programme outcomes:

- **Career opportunities:** A student with graduation in zoology has a vast range of career opportunities in the field of research, forensics, teaching, forest services, administrative services, fisheries, poultry farms, apiculture, sericulture, agriculture departments, medical laboratories, zoo and museum curators, and in the areas of wild life rehabilitation and conservation biology.
- **Problem solving skills:** Students will be able to apply the fundamental concept of zoological science and process of science through accessing data and literature. They will be able to apply the knowledge to solve any problem related with animal science.
- **Leadership and team work:** Students will be able to function effectively as an individual, as a member or a leader in a team.
- **Social welfare:** Well- designed curriculum stresses on scientific reasoning and problem solving. Furthermore, practical and theoretical

skills gained in this programme will be helpful in designing different public health strategies for social welfare.

- **Self – reliance**: The students tend to become confidant and self – sufficient during the programme by learning constantly and gaining knowledge on diverse areas of the subject.

Programme specific outcomes (PSOs):

- **Scientific knowledge:** Students will be able to identity, classify and differentiate major groups of organisms and understand their phylogenetic relationships. They will be able to explain how theory of evolution offers scientific explanation for the unity and diversity of life on earth and can use specific examples to explicate how descent with modification has shaped animal morphology, physiology and behavior.
- They will be able to explain the functioning of organisms at gene, cellular, tissue, organ and organ-system level and integrate and analyze the information to formulate arguments and critically evaluate scientific claims.
- Students will be able to acquire complete knowledge of disciplinary as well as allied biological sciences.
- **Practical skills:** After graduation, students will be able to use basic laboratory techniques and biological instrumentation correctly, preparing them for higher studies.
- **Professional skills:** Understand the applications of biological sciences in apiculture, sericulture, aquaculture, poultry, agriculture, enzymology, immunology, pest control and medicine etc.to name some.
- **Environmental concerns:** Students will be able to relate the physical features of environment to the structure of population, communities and ecosystems. This will make them recognize the dire and urgent need to conserve the wildlife, ecosystems and its components worldwide.

Course outcomes (Cos):

The students will recognize the necessity to classify and identify the diverse group of animals and their phylogenetic relationships. They will develop knowledge of contemporary issues. Students will develop ability to design and perform experiments and interpret the data.

COs: Animal Diversity

- Understand characteristic features of diverse group of fauna present on this earth.
- To understand taxonomic positions of these animals.
- Phylogenetic relationship among the animals.
- Understand the process of evolution.

COs: Comparative anatomy and developmental biology of vertebrates

- To understand anatomy and different physiological systems of animals.
- To understand evolution and increasing complexity of physiological systems in higher groups of animals.
- Understand the development of embryo, various organs, organ – systems, placentation, implantation, IVF, ageing and regeneration etc.

COs: Physiology and biochemistry

- Understand the functioning of various physiological systems of vertebrates including human beings and abnormalities related to these systems.
- Understand medical techniques and procedures related with functioning of physiological systems.
- To understand structure and functions of bio/macromolecules of life and intermediary metabolism.

COs: Cytogenetics and evolutionary biology

- Understand the structure and functioning of gene, DNA, RNA, chromosomes, genome, mutations, variations, laws of heredity, gene regulation etc.
- To know the theories and processes of evolution. Types of evolution, adaptive radiations, geological time scale, fossils and geographical realms.

COs: Medical diagnostics

- Understand various laboratory techniques.
- Diagnosis methods of various diseases.

COs: Apiculture

- Learning different species of honey bee.
- Composition and uses of honey.
- Understand requirements, scenario and scope of bee- keeping industry.

COs: Applied zoology

- Understand practical applications of zoological sciences.
- Life cycle of important parasites/pests.
- Understand pest control.

COs: Animal biotechnology

- Understand various biochemical/biotechnological processes and techniques.
- To understand cell/tissue- culture, and genetic- engineering.
- To understand industrial biotechnology including production of enzymes, hormones, drugs, metabolites, monoclonal antibodies etc.

COs: Aquatic biology

- To understand life inside water.
- To know features, taxonomic positions and importance of these aquatic **creatures.**

COs: Insect, vector and diseases

- To understand the morphology and life cycle of important insect vectors and diseases transmitted by them.
- Understand different types of host, host – parasite interactions.
- Epidemiology, pathogenicity, treatment and prophylaxis of these diseases.

COs: Immunology

- To understand various components (cells and organs) of immune system.
- Functioning of immune system.
- To understand complement system, MHC, hypersensitivity, anaphylactic reactions and vaccines.

COs: Reproductive biology

- To understand reproduction and reproductive organs.

COs: Sericulture

- Understand different genera and species of silkworm.
- Sericulture techniques and industry.

COs: Aquarium fish keeping

- Understand indigenous and exotic fishes of aquarium.
- Aquarium keeping techniques and significance.

COs: Research methodology

- Understand different methods to be used in research.
- Paper writing and publishing.
- To understand writing of hypothesis.

Student progression:

After completion of UG course, many students qualify the entrance tests conducted by state/ central universities/institutions for admission to post – graduation programme in the subject. Some students have cleared competitive examinations and working in different departments. A good number of students get themselves enrolled for B. Ed. Programme from Government/ private colleges affiliated with state university.

Activities:

Important days related to the subject are celebrated with great enthusiasm and students are engaged in such activities to make them aware of importance of these celebrations in addition to regular classroom teaching and laboratory work. Periodic activities like quizzes, seminars, declamations, debates and working /non-working models are organized by the department to provide academic excellence to undergraduate students. The faculty is constantly engaged with the students so as to boost up their morale and curiosity. Short excursion trips to appropriate locations are organized by the department to make students familiar with the fauna. Besides, the students are motivated to take part in different events/community services organized by the institution/NGOs. Student grievances are also taken care of by the faculty members.