**Course Outcomes of Department of Zoology**

This college is following the CBCS of HP University which is based on the CBCS template of UGC it provides an opportunity for the students to choose courses from the prescribed courses comprising core, elective/minor or skill based courses. In Zoology we are providing flowing course structure:-

**Discipline Specific Courses (DSC)** : A course, which is studied by a candidate as a core requirement is termed as a Core course

**Elective Course:** Generally a course which can be chosen from a pool of courses and which may be very specific or specialized or advanced or supportive to the discipline

**Skill Enhancement Courses (SEC)** : These courses may be chosen from a pool of courses designed to provide value-based and/or skill-based instruction in the subject.

**Discipline Specific Elective (DSE):** An elective course chosen generally from an unrelated discipline/subject, with an intention to seek exposure to other subjects/disciplines of interest.

**COURSE STRUCTURE:** There are a total of four core courses (DSC) in Zoology that students are required to take across first two years. All the core courses are compulsory. The Discipline Specific Elective (DSE) Courses are offered in the third year and the two DSE courses in Zoology will be selected by a student from a set of 6 courses specified. SEC courses are offered in the second and third years of study.

* **Discipline Specific Courses (DSC)**
* **BSc I (DSC)-**

**DSC IA -** Animal Diversity ZOOL 101 TH

**DSC IB -**Comparative Anatomy and Development Biology of Vertebrates  ZOOL 102 TH

* **BSc II (DSC)-**

**DSC IC -** Physiology and Biochemistry ZOOL 201 TH

**DSC ID -**Genetics and Evolutionary Biology ZOOL 202 TH

**Course title: Animal Diversity ZOOL 101 TH**

**Nature of Course: DSC IA**

This course is designed to introduce students to the biodiversity of animals. After completion of this course, students will be able to understand the basic characters of different animals categorized as invertebrates and vertebrates along with the practical knowledge.

**Course title: Comparative Anatomy and Development Biology of Vertebrates  ZOOL 102 TH**

**Nature of Course: DSC IB**

This course offers deep insight in to the anatomy and embryology of the vertebrates. After completion of this course students will be well conversed with the anatomical details and developmental biology of the animals.

**Course title: Physiology and Biochemistry ZOOL 201 TH**

**Nature of Course: DSC IC**

This course is designed to make students understand the physiological and biochemical phenomenon such as digestion, movement, co-ordination, sensory and motor mechanisms, hearing, vision, circulation and reproduction etc.

**Course title: Genetics and Evolutionary Biology ZOOL 202 TH**

**Nature of Course: DSC ID**

After studying this course students will be able to understand the hereditary mechanisms involving genes and chromosomes and their regulatory mechanisms. Along with these students will be able to know the various evolutionary mechanisms such as evolution of man and other animals, plants, various adaptations in plants and animals also many other evolutionary phenomena under geological time scale

* **BSc III Discipline Specific Elective** **(DSE)**
* **DSE IA**: Applied Zoology ZOOL 301 (A) TH**/** Animal Biotechnology ZOOL 301 (B) TH**/** Aquatic Biology ZOOL 301 (C) TH
* **DSE IB**: Insect, Vector and Diseases ZOOL 302(A) TH**/** Immunology ZOOL 302(B) TH**/** Reproductive Biology ZOOL 302 (C) TH

**Course title: Applied Zoology ZOOL 301 (A) TH**

**Nature of Course: DSE 1A**

This course is a specialization within zoology that uses the knowledge and method of zoology to solve real world problems for the benefit of mankind. It deals with animal world that is associated with the economy, health and welfare of humans.

**Course title: Animal Biotechnology ZOOL 301 (B) TH**

**Nature of Course: DSE 1A**

This course introduces student to the modern tools and techniques of the biotechnology such as cloning vectors, northern and southern blotting and PCR etc. This will equip students to make their career in the field of pharmaceuticals, microbial and biotechnological industry.

**Course title: Aquatic Biology ZOOL 301 (C) TH**

**Nature of Course: DSE 1A**

This course will acquaint students with fresh water and marine ecosystems such as lakes, rivers, estuaries and oceans as well as management of aquatic resources. After completion of this course students will be able to understand the importance of aquatic flora and fauna and contribute in saving the aquatic life from man-made pollution and other harmful activities.

**Course title: Insect, Vector and Diseases ZOOL 302(A) TH**

**Nature of Course: DSE 1B**

This course is designed to study the insect vectors and diseases caused by them. Studying this course will certainly help the students to identify the insects as vectors and take the precautionary measures to prevent the spread of insects and insect borne diseases.

**Course title: Immunology ZOOL 302(B) TH**

**Nature of Course: DSE 1B**

This course introduces students to the working of the immune system of the body and important terms such as antigens, antibodies and vaccines, their role in defending the body from the pathogens. This course enables students to learn the importance and role of vaccination in boosting our immune system.

**Course title: Reproductive Biology ZOOL 302 (C) TH**

**Nature of Course: DSE 1B**

This course enables students to learn the male and female reproductive system and associated reproductive technology such as ET, EFT, ZIFT, GIFT etc. This course will make students aware of the usefulness of the techniques like test-tube baby, embryo transfer and relevance of surrogacy.

* **Skill Enhancement Course (SEC)**
* **BSc II (SEC)**

SEC I: Medical Diagnostics ZOOL 203 TH

SEC II:Apiculture ZOOL 204 TH

* **BSc III (SEC)-**

SEC III: Sericulture ZOOL 303 TH

SEC IV: Aquarium Fish Keeping ZOOL 304 (A) TH/ Research Methodology ZOOL 304 (B) TH

**Course title: Medical Diagnostics ZOOL 203 TH**

**Nature of Course: SEC-I** for BSc II

This course will help the students to develop skill to perform hematology and biochemical experiments such as RBC and WBC counts, Hb count, BP monitoring, sugar analysis and urine analysis etc.

**Course title:Apiculture ZOOL 204 TH**

**Nature of Course: SEC-II** for BSc II

This course is designed to study the rearing of honey bees. After studying this course, the students can start own apiary and become self-employed. They can earn their livelihood by selling bee products such as honey, bee wax and they can also provide bees as pollinators to the farmers during flowering season on rent basis.

**Course title: Sericulture ZOOL 303 TH**

**Nature of Course: SEC-III** for BSc III

This course is designed to study the rearing of silkworms bees. After studying this course, the students can start own sericulture farm and become self-employed. They can earn their livelihood by selling the products such as silk shawls, sarees and other material.

**Course title**: **Aquarium Fish Keeping ZOOL 304 (A) TH**

**Nature of Course: SEC-IV** for BSc III

From this course students will be able to comprehend the key skills needed to set up an aquarium. They will be able to identify and differentiate the different aquarium/ornamental fishes and will also formulate fish food that provides with complete nutritional benefits. They will also analyze the budget required to set up a well maintained home aquarium.

**Course tit**le**: Research Methodology ZOOL 304 (B) TH**

**Nature of Course: SEC-IV** for BSc III

This course introduces students to the basics of research which can be very useful in higher studies especially while doing Ph.D. and other research work.