Tribhuvan University
Institute of Science and Technology
Four Years B. Sc. Zoology Course of Study

Course Title: Chordata, Comparative Anatomy and Evolution  Full Marks: 100
Course No. : B.Sc. Zool.201  Pass Marks: 35
Nature of Course: Theory  Year: II
Instruction Lectures: 150

Objectives of the Course:
At the end of course students will be able to:

- Classify various species of Chordates based on important characteristics.
- Understand the origin, evolution and adaptive radiation of various classes.
- Be familiar with the fauna of Nepal and their status.
- Understand fundamental aspects of animal behaviours.
- Know the functional anatomy of each class.
- Be familiar with concepts and principles of evolution and biogeography.

Group A1: Chordata

Agnatha: Characteristics and classification. Salient features of Petromyzon and Myxine.  (3 lec.)


Group A2: Ethology

Group B1: Comparative Anatomy of Chordata

**Exoskeleton** - Integument and its derivatives. (5 lec.)

**Endoskeleton** - Axial and appendicular skeleton. (9 lec.)

**Digestive organs** - Alimentary canal and associated glands. (6 lec.)

**Respiratory organs** - Skin, gills and lungs. Air sacs. (6 lec.)

**Circulatory organs** - Hearts and aortic arches. Portal systems. (8 lec.)

**Urinogenital organs** - Kidney and its ducts, gonads and their ducts. (8 lec.)

**Brain and sense organs** - Vertebrate brain, ear and eye. (8 lec.)

Group B2: Evolution and Biogeography


**Text Books** (latest eds.):
- Young, J.Z. The Life of Vertebrates. The Oxford University Press.

**Suggested Readings**:
DNPWC, Kathmandu.

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Objective of the Course: For better understanding of the topics of Zool.201.

1. **Study of museum specimens**: Identification, classification, sketches, general characters and biological importance.
2. **Methods of studying vertebrates**: Sampling, collection, transportation, preservation, identification and tagging.
3. **Dissection of fish** (*Scoliodon* or *Labo* sp. or locally available fish): General anatomy, digestive organ, afferent and efferent branchial arteries, brain and cranial nerves, Eye muscles.
4. **Dissection (amphibia/reptile/bird/mammal)**: General anatomy, digestive organ, urinogenital organ, arterial and venous systems, brain and cranial nerves.
5. **Mounting**: Scales – placoid, cycloid, and ctenoid/ampulla of lorenzini, weberian ossicle of any fish, pecten of bird.
6. **Study of followings** based on original, models and charts- Scales of reptiles; Feathers of birds; Gills of fishes; Lungs of amphibians, reptiles, birds and mammals; Heart and Brain of vertebrates.
7. **Histology**: Study of permanent slides of TS/VS of skin, liver, intestine, pancreas, kidney, ovary, testis, stomach, lung and spinal cord.
9. Study of any two fossils (if available).

**Practical note book preparation as regular study.**

**Report writing**: Survey of any locality regarding any topic of Zool. 201 (visit to zoological museum/zoo/protected areas/natural habits- forest/lake or river), writing and submission of a report on fauna (of about 5-10 pages).

**Practical Books:**

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