FYUGP CURRICULAR FRAMEWORK FOR ZOOLOGY AS MAJOR

SEMESTER	COURSE CODE	COURSE TYPE	COURSE TYPE	CREDITS	
				THEORY	PRACTICALS
I	ZOL122J	CT - I	**ZOOLOGY:** INTRODUCTION TO SYSTEMATICS & NON-CHORDATES	4	2
II	ZOL222J	CT – I	**ZOOLOGY:** INTRODUCTION TO CHORDATES	4	2
III	ZOL322J	CT – I	**ZOOLOGY:** COMPARATIVE ANATOMY OF VERTEBRATES	4	2
IV	ZOL422J1	CT – I	**ZOOLOGY:** COMPARATIVE PHYSIOLOGY OF VERTEBRATES	3	1
	ZOL422J2	CT – II	**ZOOLOGY:** FUNDAMNTALS OF IMMUNOLOGY	4	2
	ZOL422J3	CT - III	**ZOOLOGY:** FUNDAMENTALS OF PARASITOLOGY	4	2
V	ZOL522J1	CT – I	**ZOOLOGY:** ANIMAL ECOLOGY	3	1
	ZOL522J2	CT – II	**ZOOLOGY:** CELL & MOLECULAR BIOLOGY	4	2
	ZOL522J3	CT - III	**ZOOLOGY:** FUNDAMENTALS OF ENTOMOLOGY	4	2
VI	ZOL622J1	CT – I	**ZOOLOGY:** ANIMAL BEHAVIOUR	3	1
	ZOL622J2	CT – II	**ZOOLOGY:** PRINCIPLES OF ANIMAL GENETICS	4	2
	ZOL622J3	CT - III	**ZOOLOGY:** FUNDAMENTALS OF ICHTHYOLOGY	4	2
HONOURS					
VII	ZOL722J1	CT – I	**ZOOLOGY:** ANIMAL DEVELOPMENT	3	1
	ZOL722J2	CT – II	**ZOOLOGY:** BIO-TECHNIQUES & BIOSTATISTICS	4	2
	ZOL722J3	CT - III	**ZOOLOGY:** FUNDAMENTALS OF WILDLIFE	4	2
VIII	ZOL822J1	CT – I	**ZOOLOGY:** EVOLUTIONARY BIOLOGY	3	1
	ZOL822J2	CT – II	**ZOOLOGY:** ECONOMIC ZOOLOGY	4	2
	ZOL822J3	CT - III	**ZOOLOGY:** APPLIED ZOOLOGY	4	2
HONOURS WITH RESEARCH					
VII	ZOL722J1	CT – I	**ZOOLOGY:** ANIMAL DEVELOPMENT	3	1
	ZOL722J2	CT – II	**ZOOLOGY:** BIO-TECHNIQUES & BIOSTATISTICS	4	2
	ZOL722J3	CT - III	**ZOOLOGY:** FUNDAMENTALS OF WILDLIFE	4	2
VIII	ZOL822J1	CT – I	**ZOOLOGY:** EVOLUTIONARY BIOLOGY	3	1
	ZOL822RP	PROJECT	**ZOOLOGY:** PROJECT WITH DISSERTATION	12	

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SEMESTER 1ST
MAJOR COURSE
ZOL122J: ZOOLOGY_ INTRODUCTION TO SYSTEMATICS & NON-CHORDATES
Credits: Theory=4, Practical=2

Course objective: This course is desired to give a learner the fundamental understanding of relevance of taxonomy and the diversity of non-chordate phyla with emphasis on key characteristics and classification so as to lay a strong foundation in understanding diversity of animal life. It will enlightens how each group of organisms establish themselves in the environment with their special characteristics.

Learning outcome: At the completion of this course, a student will be able to:

- Learn basic taxonomy skills and demonstrate classification and identification abilities of non-chordates;
- Comprehend and explain evolutionary relationship among the various non-chordate groups;
- Get sensitized with the relevance of animal diversity in understanding life from a broader perspective;
- The learner will utilize the knowledge gained from these creatures for the economy and
- human welfare.

Theory: (4 Credits)

Unit I: Animal Taxonomy

1.1 Introduction to systematics: terms & definitions
1.2 Utility and strategy of systematics with emphasis on α, β & ɤ taxonomy
1.3 Taxonomic characters : introduction & types
1.4 Outline classification of kingdom animalia

Unit II: Protozoa, Porifera and Coelentrata

2.1 General characters and classification of protozoa, porifera & coelentrata upto class level
2.2 Locomotion & nutrition in protozoa
2.3 Canal system & skeletal elements in porifera
2.4 Polymorphism in coelenterates

Unit III: Platyhelminthes, Nematoda & Annelida

3.1 General characters and classification of platyhelminthes, nematoda & annelida upto class level
3.2 Morphology, life cycle and pathogenicity of *Taenia solium*
3.3 Morphology, life cycle & pathogenicty of *Ascaris lumbricoides*
3.4 Filter feeding in polychaetes

Unit IV: Arthropoda, Mollusca & Echinodermata

4.1 General Characters and classification of arthropoda, mollusca & echinodermata upto class level
4.2 Mouth parts in insects & insect metamorphosis
4.3 Modification of foot in molluscs & torsion in gastropods
4.4 Water Vascular system & larval forms in echinodermata

Practical's: (2 Credits)

Section I:

1.1 Slide study of protozoa: paramecium, euglena, amoeba, entamoeba, trypanosoma , leishmania & plasmodium

1.2 Museum study of porifera: sycon, spongilla euplectella, hyalonema, euspongi; coelenterate: obelia, hydra, & physalia

1.3 Museum study of helminths: taenia, fasciola, ascaris, trichuris ; annelida: pheritema & hirudinea

1.4 Dissection of earthworm/ neries to expose its nerve ring

Section II:

2.1 Museum study of arthropoda: palaemon, julus, scolopendra, apis , wasp; mollusca: octopus, chiton, pila, unio, Aplysia & echinodermata : starfish, echinus, antedon & holothuria

2.2 Preparation of temporary mount of insect mouth parts & sting apparatus of honey bee

2.3 Dissection of sepia/ loligo to expose its nervous system

2.4 Dissection of starfish to expose its water vascular system

Suggested books:

1. Invertebrate Structure and function by E.J.W Barrington Nelson, London Publishers.
2. Invertebrate Zoology by P.S Dhami and J.K Dhami. R-Chand & Company
3. Invertebrate Zoology by Ruppert and Barnes. Holt Saunders Publishers
4. Modern Texbook of Zoology: Invertebrates by R.L Kotpal. Rastogi Publishers
5. Invertebrate Zoology by E.L Jordan and P.S Verma. S. Chand Publishers