

**ALLIED COURSES
ZOOLOGY**

SEMESTER: I PART: III	22UZOOA01: ZOOLOGY – I (ANIMAL DIVERSITY-I)	CREDIT: 4 HOURS: 4
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COURSE OBJECTIVES

- 1) To learn the principles of animal taxonomy.
- 2) To learn the classification of animals upto class.
- 3) To enlighten the students about the diverse forms of Invertebrate and Vertebrate animals present around us.
- 4) To learn the salient features and various systems of different phyla.
- 5) To help our students to distinguish various animals and to know the evolutionary sequence of them.

Unit – I

General characteristics and classification of Nine Major Invertebrate Phyla up to Class level with suitable examples. Type study: Protozoa - Paramecium; Porifera - Ascon sponge; Coelenterata - Obelia.

Unit – II

Type study: Platyhelminthes – Planaria; Nematelminthes: Ascaris; Annelida - Earthworm; General essay: Parasitic adaptations in helminthes.

Unit - III

Type study: Arthropoda - Cockroach; Mollusca – Fresh water mussel; Echinodermata - Star fish; General essay: Mouthparts and their modifications in Insects, Water vascular system in Echinoderms.

Unit - IV

General characteristics and classification of chordates up to Class level with suitable examples. Type study: Pisces - Shark (except Endoskeleton); Amphibia - Frog (except Endoskeleton); General essay: Migration in fishes, Parental care in Amphibia.

Unit - V

Type study: Reptiles: Calotes(except Endoskeleton); Aves: Pigeon (except Endoskeleton); Mammals: Rabbit (except Endoskeleton); General essay: Poisonous and non- poisonous snakes in India, Dentition in Mammals.

COURSE OUTCOMES

Upon successful completion of this course, students will be able to:

- 1) Enlighten the students about the diverse forms of Invertebrate and Chordate animals which belong to 9 major phyla present around us.
- 2) Students able to distinguish various Invertebrate and Chordate animals.
- 3) It gives idea about the evolutionary sequence of them.
- 4) Students gets idea about present advanced developed stage of our human body from primitive forms
- 5) Enlighten the students about parasitic Protozoan of Man

Text Books

- 1) Ayyar.E.M., AnanthaKrishnan T.N.1995. Manual of Zoology Vol.II, Part I&II. (Chordata), S. Viswanathan Pvt. Ltd., Chennai.
- 2) Kotpal, R.L.1998. Modern Text Book of Zoology - Vertebrata, Rastogi and Company, Meerut, India.
- 3) Jordan.E.L&Verma.P.S. "Invertebrate Zoology" S.Chand& Co. New Delhi.
- 4) Jordan.E.L&Verma.P.S. "Chordate Zoology" S.Chand& Co. New Delhi

Supplementary Readings

- 1) Dhama, P.S and Dhama, J.K. 1982. Chordate Zoology. R.Chand& co Publishers, NewDelhi.
- 2) Goodrich, 1958. Structure and development of vertebrates, Vol.I& II. New York.
- 3) Thangamani, T. and Arumugam, N. 2009. A text book of Chordates. Saras Publications.
- 4) Jordon E and Verma P.S. 1995. Chordate Zoology elements of animal physiology. S.Chand&Co.NewDelhi.
- 5) Waterman,A.J. 1971. Chordate structure and function. Macmillan Company - NewYork.

OUTCOME MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5
C01	3	3	3	3	3
C02	3	3	3	3	3
C03	3	3	3	3	3
C04	3	3	3	3	3
C05	3	3	3	3	3

SEMESTER: II PART: III	22UZOOA02: ZOOLOGY – II (ANIMAL DIVERSITY-II)	CREDIT: 4 HOURS: 4
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COURSE OBJECTIVES

1. The study of Zoology aims to increase understanding of living systems.
2. To consider the systems in relationship to the self and other organisms in the natural environment.
3. To study the cytological and anatomical details of human.
4. To learn the basic principles of genetics and developmental growth.
5. To study the basic concepts of evolution.

Unit – I CELL BIOLOGY

Prokaryotes and Eukaryotes – Ultra structure of animal cell - Structure and function of cellular organelles – plasma membrane, nucleus, mitochondria, golgi bodies, ribosomes, lysosomes, endoplasmic reticulum, vacuoles, chromosomes, and DNA structure.

Unit – II DEVELOPMENTAL BIOLOGY

Introduction - Types of eggs - Cleavage and types of Frog egg – Blastulation and Gastrulation in frog embryo - Organogenesis in frog - Development of eye and heart in frog. Placental mammals, Test tube babies.

Unit – III GENETICS

Mendel's principles and applications - Linkage and crossing over (mechanism and significance) - Sex determination in man - Sex linked inheritance - Genetic diseases (Hypercholesterolemia, cystic fibrosis, phenylketonuria and hemophilia) - Syndromes (Down, Klinefelter and Turner).

Unit - IV ANIMAL PHYSIOLOGY

Structure of mammalian heart and its working mechanism and disorders – Heart beat, ECG and Cardiac cycle; Properties and Functions of blood – ECG, Blood Pressure, blood sugar and cholesterol - Reproduction - Endocrine control of mammalian reproduction – Male and female hormones.

Unit - V EVOLUTION

Chemical origin of life; Lamarckism, Darwinism and De Vries Theories of Evolution; Hardy Weinberg Principle: Gene pool and Gene frequency; Evolution of man.

COURSE OUTCOMES

- 1) The students know about the various types of animal cell structures with their characteristic features and detailed functions.
- 2) It provides understanding of the processes of early embryonic development
- 3) Students get idea about their own development from single cell to present stage of life.
- 4) It gives basic overview of genes, mutations, sex determination and patterns of inheritance.
- 5) It train the students in blood grouping of man

- 6) To impart training on the techniques of physiological concepts in vertebrate animals
- 7) It helps in understanding of the evolution of life.

Text Books

- 1) Arumugam.N 2013 “Cell Biology” Saras publications.
- 2) Arumugam.N 2013 “ Developmental Zoology” Saras publications.
- 3) Meyyan R.P. 2013 “Genetics” Saras publications.
- 4) Arumugam.N 2013 “Animal Physiology” Saras publication.
- 5) Arumugam.N 2013 “Evolution”, Saras Publication., Nagercoil.

Supplementary Readings

- 1) Cell Biology, Genetics, Molecular Biology, Evolution and Ecology, P.S.Verma& V.K. Agarwal, S. Chand & Company Ltd, New Delhi, 2004.
- 2) Introductory Modern Biology, S.SundaraRajan, Anmol Publications Pvt. Ltd, New Delhi.

OUTCOME MAPPING

CO/PO	PO1	PO2	PO3	PO4	PO5
C01	3	3	3	3	3
C02	3	3	3	3	3
C03	3	3	3	3	3
C04	3	3	3	3	3
C05	3	3	3	3	3

SEMESTER: II PART: III PRACTICAL: I	22UZOOP02: ZOOLOGY PRACTICAL	CREDIT: 3 HOURS: 3
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COURSE OBJECTIVES

- 1) Learn and be familiar with the Laboratory techniques.
- 2) To understand the taxonomic position, body organization and evolutionary relationship of animals.
- 3) To inculcate the significance of various non chordates and chordates.

Unit I :MAJOR PRACTICAL - DISSECTIONS

Earth worm / Cockroach - Digestive and Nervous system
Prawn -Nervous system and Appendages.

Unit II: MINOR PRACTICAL - MOUNTING

Mouth parts of Mosquito/ Cockroach and Honey bee
Earthworm – Body setae
Placoid scales of Shark

Unit III: MAJOR PRACTICAL

Qualitative detection of excretory products (Ammonia, Urea, Uric acid).
Experimentsonmendelianinheritance

Unit IV: MINOR PRACTICAL

Identificationof ABO bloodgroup.
Preparationof mitosisin onionroot tip.

Unit V: SPOTTERS

Amoeba, Sycon, Obelia, Taenia solium (entire, scolex),Ascaris (Male and Female),Earthworm (entire, Pineal setae) Prawn (entire), Fresh water mussel, Sea star, Amphioxus – Entire, Shark, Frog, Calotes, Pigeon, feathers of pigeon and Rabbit. DNA structure,Syndromes (Down, Klinefelter and Turner),Placenta in mammals,Sphygmomanometer, Stethoscope, ECG, Rain gauge.

COURSE OUTCOMES

1. Familiar with practical skills in the use of tools, technologies and methods common to microbiology and physiology
2. Apply knowledge and come to know how to handle different organisms
3. Apply knowledge and come to know how to handle different organisms

Text Books

- 1) Arumugam N. (2013). Practical Manual, Saras Publication, Nagercoil, Tamilnadu, India
- 2) Das S. (2020). Microbiology Practical Manual, CBS Publication, Delhi.
- 3) Jayasurya, Arumugam N, Dulsey Fatima. (2013). Practical Zoology Vol 3, Saras Publication, Nagercoil, Tamilnadu, India.
- 4) Singh HR and Neerajkumar. (2014). Animal Physiology and Biochemistry, Vishal Publishing Co. Jalandhar, Delhi.