

HARD CORE THEORY PAPER (ZHT 205)

Structure and Function of Chordate & Biosystematics and taxonomy

Group A: Structure and Function of Chordate

Module	Unit	Content	Credit	Class	Time (h)
ZHT - 205 (Structure and Function of Chordate & Biosystematics and taxonomy)	I	Blood and cardiovascular system: Hematopoiesis and blood volume regulation.	1.5	1	1
	II	Comparative anatomy of heart structure; Cardiac cycle; neural and chemical regulation of functions of heart.		1	1
	III	Respiratory system: Comparative account of respiratory system; transport and exchange of gases.		1	1
	IV	Nervous system: Gross neuroanatomy of brain and spinal cord; neural control of muscle tone.		1	1
	V	Thermoregulation: Body temperature – Physical, chemical, neural regulation; acclimation and acclimatization		1	1

HARD CORE THEORY PAPER (ZHT 205)

Structure and Function of Chordate & Biosystematics and taxonomy

Group B: Biosystematics and taxonomy

Module	Unit	Content	Credit	Class	Time (h)
ZHT - 205 (Structure and Function of Chordate & Biosystematics and taxonomy)	VI	Species concept: Evolutionary and biological species concept; difficulties in application of biological species concept.	1.5	1	1
	VII	Theories of biological classification: classification and phylogeny-type s of classification, hierarchic classification.		1	1
	VIII	Zoological nomenclature, basic knowledge of naming genus and species.		1	1
	IX	Phenetic method of classification, numerical phenetics and numerical taxonomy.		1	1
	X	Preparation of data matrix and similarity matrix using distance method (Manhattan distance and Euclidian distance); Cluster analysis (different methods).		1	1
	XI	Cladistic method of classification ,difference in the application of phenetic and cladistic classification; cladistic and cladogram, eludistic methods, application of parsimony.		1	1
	XII	Morphological taxonomy and molecular taxonomy; Construction of phylogenetic trees using molecular data.		1	1

HARD CORE THEORY PAPER (ZHT 206)

Advanced Parasitology and Fish Biology

Group A: Advanced parasitology

Module	Unit	Content	Credit	Class	Time (h)
ZHT - 206 (Advanced Parasitology and Fish Biology)	I	Physiology of parasitic amoebae of man.	1.5	1	1
	II	Mode of transmission, pathogenicity and prevention of tetanus and rabies		1	1
	III	Physiology, immunopathology of <i>Plasmodium sp.</i> immunity of <i>Plasmodium sp</i>		1	1
	IV	Fish parasites and its control.		1	1
	V	Parasites of edible oysters		1	1

HARD CORE THEORY PAPER (ZHT 206)

Advanced Parasitology and Fish Biology

Group B:Fish Biology

Module	Unit	Content	Credit	Class	Time (h)
ZHT - 206 (Advanced Parasitology and Fish Biology)	VI	Excretion and osmoregulation in fish.	1.5	1	1
	VII	Reproduction in fish : reproductive strategies, oviparity, viviparity, ovo-viviparity, Parental care, maturity stages, breeding cycle		1	1
	VIII	Structure and physiology of endocrine glands in fishes		1	1
	IX	Electroreception in fish		1	1
	X	Determination of age of fish by scale and hard parts.		1	1
	XI	Poisonous and venomous fish.		1	1
	XII	Fish migration: Types, Theories and Significances		1	1

HARD CORE THEORY PAPER (ZHT 207)

Immunobiology & Human Population Genetics

Group A: Immunobiology

Module	Unit	Content	Credit	Class	Time (h)
ZHT - 207 (Immunobiology & Human Population Genetics)	I	Basic concepts of immune system; primary and secondary lymphoid organs; Tissue, cells, molecules of immune system	1.5	1	1
	II	Innate immunity: Overview, features, neutrophils, macrophage functions, inflammation, NK cells		1	1
	III	Humoral immune system: Structure and class switching of antibodies, B cell function, maturation and development.		1	1
	IV	Complement system and diseases		1	1
	V	Antigen presentation: APC, Dendritic cells, MHC genes and gene products		1	1
	VI	Vaccination and immunization: natural and artificial immunization; active immunization, vaccines.		1	1

HARD CORE THEORY PAPER (ZHT 207)

Immunobiology & Human Population Genetics

Group B: Human Population Genetics

Module	Unit	Content	Credit	Class	Time (h)
ZHT - 207 (Immunobiology & Human Population Genetics)	VII	Basic concept of human genetics: introduction to the structure of human genome; human genome and mapping	1.5	1	1
	VIII	Human karyotype ; karyotype and nomenclature of metaphase chromosome bands		1	1
	IX	Chromosome anomalies and diseases.		1	1
	X	Genetic analysis of complex traits - complex pattern of inheritance, quantitative traits, threshold traits.		1	1
	XI	Human genetics and society: genetic testing; human rights; gene therapy.		1	1
	XII	Quantitative genetics; variance; heritability and its measurement; inbreeding and cross breeding; QTL.		1	1

OPTIONAL PAPER (ZOP- 201)

APPLIED ZOOLOGY

1	Unit	Content	Credit	Class	Time (h)
ZOP - 201 (APPLIED ZOOLOGY)	I	Categories of wildlife.	4.0	1	1
	II	Wildlife and wildlife habitat in India: Wild life wealth of India		1	1
	III	Wild life management: Distribution, status , habitat utilization pattern, threats and survival of – Royal Bengal Tiger, Rhinoceros, Olive Ridley turtles.		1	1
	IV	National and International efforts for conservation: CITES, IUCN, CBD, Protected area concept.		1	1
	V	Concept of habitat and niche.		1	1
	VI	Ecological principles		1	1
	VII	Community ecology: nature of communities; levels of species diversity and its Measurements		1	1

	VIII	Biogeographical zones of India	1	1
	IX	Environmental management: solid waste management with vermicomposting; Bioremediation; Bioreactors in Environment monitoring.	1	1
	X	Organic farming	1	1
	XI	Insect pollinators in agriculture	1	1
	XII	Integrated fish farming.	1	1
	XIII	Induced breeding	1	1
	XIV	Genetics of Neurological Diseases: Pharmacogenetics and application	1	1
	XV	Preliminary knowledge on zoonotic diseases.	1	1
	XVI	Immunodiagnosics: Basic of Immunology and its application.	1	1