DANTULURI NARAYANA RAJU COLLEGE (AUTONOMOUS)

(A College with Potential for Excellence)

Bhimavaram, W.G.Dist, A.P.

Syllabus for the Academic Year 2013-14

Department : Zoology Paper : 1B BIOLOGY OF INVERTEVRATES AND BIOMOLECULUS Class : I B.Sc Semester : II

Arthropoda – G.C. & Class, Biomolecules introduction
P.monodon – Ext. Characters, Carbohydrates – Properties, Types
P.monodon – Digestive System, Respiratory system, Circulation system, Monosaccharides
P.monodon – Respiratory system, Crustacean larvae, Disacharides
Polysaccharides, G.C. & Classification – Mollusca
Pila – External characters, Digestive system, Respiratory system, Circulation system, Respiratory system
Proteins – Properties, Classification
Amino Acids – Classification, Pila – Excretory system lipids – class
Star fish – Type study, Pearl formation
DNA – Structure- Chemical basis
RNA – Structure, Types, Functions
Hemichordata – G.C., Balanoglossus – Structure, Affinities

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Syllabus for the Academic Year 2013-14

Department :ZOOLOGY Paper :IIB BIOLOGY OF CHORDATES, ECOLOGY AND ZOOGEOGRAPHY Class:II BSC Semester:IV

General characters & classification Reptiles ,Gaseous cycle- Nitrogen, Carbon
Calotes -Morphology, Digestive system, Sedimentary cycle-Phosphorus
Calotes -Respiratory, Circulatory, Urinogenital systems
Community-Definition, characteristics, Calotes—Nervous system
Aves-General characters, classification, Community interactions-Competition
Community interactions—Predation, Mutualism, commensalism, parasitism
Pigeon-Exoskeleton, Respiratory, circulatory systems
Ecological succession
Migration in birds, Flight adaptations
Growth curves and growth of animal population
General characters and classification of Mammals
Growth curves and growth of animal population, population regulation mechanism
Growth of human population, future of human population
Dentition in Mammals
Fauna of Australian, Oriental, Ethiopian regions

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Syllabus for the Academic Year 2013-14

Department : ZOOLOGY Paper : IIIB Animal Physiology & Genetics Class: III BSC Semester:VI

Nerve cell structure, conduction of Nerve impulse
Structure of synapse, Mechanism of synaptic transmission
Hypothalamus, Introduction about genetics, Laws
Genetic interactions, Pituitary gland
Hormones of Adenohypophysis, & Neurohypophysis –Griffith's – Hatchery chase expt.
Pineal gland, Thymus gland – DNA- Replication
Parathyroid, Thymus gland, Adrenal glands
Pancreas –Transcription
Endocrine control of Mammalian reproduction
Translation, genetic code, gene regulation
Concept of Homeostasis -Human Karyotyping
Barr bodies, Lyon hypothesis
Osmoregulation in fresh water and marine water animals, Chromosomal disorders
Autosomal, Allosomal disorders
Temperature regulation in terrestrial animals
Glucose level maintenance in Man

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Syllabus for the Academic Year 2013-14

Department :ZOOLOGY Paper :IVB APPLIED ZOOLOGY Class:III BSC Semester:VI

Induced Breeding, Biotechnology – Introduction
Scope of Biotechnology
Hatchery design & Management, Cloning vectors
Transportation of Seed, Nursery Pond construction
Plasmids, types, enzymatic cleavage of DNA
Rearing Pond – Construction & Management
Pre stocking & Post stocking Management Practices
Fresh water Prawn culture
Scampi hatchery
Biology of P.monodon, P.indicus, Breeding in Shrimps
Prawn hatchery, Grow out Ponds. Transgenesis- Fish and Goat
Stem cell technology, Diabetes-Stem cell application
Parkinson diseases- Symptoms, treatment with Stem cells
Fish preservation methods
Industrial methods of preservation

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Syllabus for the Academic Year 2013-14

Department : Zoology Paper : 1A Biology of Invertebrates & Cell Biology Class : I B.Sc. Semester: I

Bridge Course – Invertebrates, Cell Biology
Protozoa , Classification, Ultra structure of Animal Cell
Paramoecium – Type study, Plasma membrane – Structure & Functions
Porifera – G.C, Classification, Sycon – Type study ; E.R.
Sycon – Life History, Golgi complex .
Canal system, Coelenterata – G.C., Classification, Ribosomes
Lysosomes, Obelia type study, Chromosomes – Structure
Fasciola – Type study, Types of chromosomes
Type study - Ascaris, Annelida – G.C. Classification
Leech – Type study – External features, Systems
Mitosis, Meiosis – Process, Significance, Cell cycle
Leech – Digestive Sy, Nervous system, Sensory, Reproductive system, vermi culture

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Syllabus for the Academic Year 2013-14

Department :ZOOLOGY Paper :IIA BIOLOGY OF CHORDATES AND EMBRYOLOGY Class:II BSC Semester:III

Introduction and General Organization of Chordates, Introduction about Embryology
Spermatogenesis, Oogenesis
Salient features of Urochordata and Cephalochordata
Retrogressive metamorphosis, Types of Eggs, Types of Cleavages, Cyclostomes
Frog-Gastrulation, Formation of primary germlayers, Scoliodon-Morphology
Scoliodon Respiratory, Circulatory systems .Development of chick upto 24 hrs
Scoliodon Excretory , Nervous systems
Foetal membranes
Sence organs in Scoliodon
Migration in Fishes, Types of scales in Fishes
General characters and classification of Amphibia
Placenta introduction
Rana-Morphology, Respiratory, Circulatory systems
Rana- Reproductive system
Placenta types, functions, Parental care in Amphibia
Regeneration with reference to Turbellarians, Lizards

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Syllabus for the Academic Year 2013-14

Department : ZOOLOGY Paper :IIIA Animal physiology & Evolution Class: III BSC

Semester:V

Introduction about Physiology, Evolution
Explanation about theories-Origin of life
Physiology of digestion, types of digestion, Gastro intestinal hormones
Types of respiration, Structure of Mammalian lung & gaseous exchange
Transport of Oxygen , Carbon-dioxide ,Glycolysis, Kreb's cycle
Electron transport, Oxidative phosphorylation, Open &closed circulation
Structure &Working of Mammalian Heart, Cardiac cycle
Myogenic & Neurogenic Hearts Classification of animals on the basis of exe. products
Mammalian kidney—Structure and functions
Urine formation, Counter current mechanism
Types of Muscles, Ultra structure of skeletal muscle
Sliding filament theory of muscle contraction
Chemical changes during muscle contraction, ATP utilization & it's replenishment
Genetic basis of Evolution
Gene pool, Gene frequency, Hardy Weinberg Law
Natural selection, genetic drift, Migration
Mutations, Isolation

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Syllabus for the Academic Year 2013-14

Department :ZOOLOGY Paper :IVA APPLIED ZOOLOGY Class:III BSC Semester:V

Introduction about Aquaculture History, Institutes
Earlier Research Activities in Immunology, Discoveries
Introduction about Fish physiology, Anatomy
Detail view about Lymphoid organs, Blood functions
Capture, Culture Fisheries, Fish resources in India
Anemia, Leukemia- Detail account
Types of Fisheries, Blood sugar levels
Indian Major Carps, Chinese Carps
Cat Fish, Leucocytosis, Leucopania
Pearl Oyster culture, Mussel culture
Types of Immunity, Biopsy, Antigen, Haptens
Monoculture, Polyculture, Integrated culture system
Cage culture, Pen culture, Raft culture
Hypersensitivity, Entamoeba-Structure, Pathogenicity
Plasmodium Structure, Pathogenicity
Prawn Artificial culture system, Cholesterol-CVD

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Syllabus for the Academic Year 2014-15

Department : Zoology Paper : 1B BIOLOGY OF INVERTEVRATES AND BIOMOLECULUS Class : I B.Sc Semester : II

Arthropoda – G.C. & Class, Biomolecules introduction
P.monodon – Ext. Characters, Carbohydrates – Properties, Types
P.monodon – Digestive System, Respiratory system, Circulation system, Monosaccharides
P.monodon – Respiratory system, Crustacean larvae, Disacharides
Polysaccharides, G.C. & Classification – Mollusca
Pila – External characters, Digestive system, Respiratory system, Circulation system, Respiratory system
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Star fish – Type study, Pearl formation
DNA – Structure- Chemical basis
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Syllabus for the Academic Year 2014-15

Department :ZOOLOGY Paper :IIB BIOLOGY OF CHORDATES, ECOLOGY AND ZOOGEOGRAPHY Class:II BSC Semester:IV

General characters & classification Reptiles ,Gaseous cycle- Nitrogen, Carbon
Calotes -Morphology, Digestive system, Sedimentary cycle-Phosphorus
Calotes -Respiratory, Circulatory, Urinogenital systems
Community-Definition, characteristics, Calotes—Nervous system
Aves-General characters, classification, Community interactions-Competition
Community interactions—Predation, Mutualism, commensalism, parasitism
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Ecological succession
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Growth curves and growth of animal population
General characters and classification of Mammals
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Parathyroid, Thymus gland, Adrenal glands
Pancreas –Transcription
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Translation, genetic code, gene regulation
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Barr bodies, Lyon hypothesis
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Department :ZOOLOGY Paper :IVB APPLIED ZOOLOGY Class:III BSC Semester:VI

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Scope of Biotechnology
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Plasmids, types, enzymatic cleavage of DNA
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Pre stocking & Post stocking Management Practices
Fresh water Prawn culture
Scampi hatchery
Biology of P.monodon, P.indicus, Breeding in Shrimps
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Fasciola – Type study, Types of chromosomes
Type study - Ascaris, Annelida – G.C. Classification
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Syllabus for the Academic Year 2014-15

Department :ZOOLOGY Paper :IIA BIOLOGY OF CHORDATES AND EMBRYOLOGY Class:II

BSC Semester:III

Introduction and General Organization of Chordates, Introduction about Embryology
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Frog-Gastrulation, Formation of primary germlayers, Scoliodon-Morphology
Scoliodon Respiratory, Circulatory systems .Development of chick upto 24 hrs
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Syllabus for the Academic Year 2014-15

Department : ZOOLOGY Paper :IIIA Animal physiology & Evolution Class: III BSC

Semester:V

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Explanation about theories-Origin of life
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Transport of Oxygen , Carbon-dioxide ,Glycolysis, Kreb's cycle
Electron transport, Oxidative phosphorylation, Open &closed circulation
Structure &Working of Mammalian Heart, Cardiac cycle
Myogenic & Neurogenic Hearts Classification of animals on the basis of exe. products
Mammalian kidney—Structure and functions
Urine formation, Counter current mechanism
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Syllabus for the Academic Year 2014-15

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Introduction about Aquaculture History, Institutes
Earlier Research Activities in Immunology, Discoveries
Introduction about Fish physiology, Anatomy
Detail view about Lymphoid organs, Blood functions
Capture, Culture Fisheries, Fish resources in India
Anemia, Leukemia- Detail account
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Bhimavaram, W.G.Dist, A.P

Syllabus for the Academic Year 2015-16

Department :ZOOLOGY Paper :IB Animal diversity of Chordates Class:I BSC

Semester:II

General Characters chordates, cephalochordates,urochordates
Amphioxus- type study
Cyclostomes- characters, Differences
Fishes-G.C and classification, Scoliodon- morphology
Scoliodon- Digestive, Respiratory, Circulatory systems
Migration in Fishes, Amphibia- G,C and Classification
Rana- Digestive, Respiratory, Circulatory,Reproductive systems
Reptiles- G.C and Classification, Calotes- type study
Birds-G.c and classifications. Pigeon- type study
Migration in birds, Flight adaptations
Mammals-G.C and Classification, prototheria, Metatheria characters
Dentition in Mammals, Revision

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Syllabus for the Academic Year 2015-16

Department :ZOOLOGY Paper :IIB BIOLOGY OF CHORDATES, ECOLOGY AND ZOOGEOGRAPHY Class:II BSC Semester:IV

General characters & classification Reptiles ,Gaseous cycle- Nitrogen, Carbon
Calotes -Morphology, Digestive system, Sedimentary cycle-Phosphorus
Calotes -Respiratory, Circulatory, Urinogenital systems
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Aves-General characters, classification, Community interactions-Competition
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Structure of synapse, Mechanism of synaptic transmission
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Parathyroid, Thymus gland, Adrenal glands
Pancreas –Transcription
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Scope of Biotechnology
Hatchery design & Management, Cloning vectors
Transportation of Seed, Nursery Pond construction
Plasmids, types, enzymatic cleavage of DNA
Rearing Pond – Construction & Management
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Biology of P.monodon, P.indicus, Breeding in Shrimps
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Syllabus for the Academic Year 2015-16

Department :ZOOLOGY Paper :IA Animal Diversity of Invertebrates Class:I BSC

Semester:I

Brief history, Significance of Diversity of Non Chordates
Protozoa, General characters, Classification of Protozoa
Elphidium(type study) porifera general characters
Classification of Porifera ,canal systems in sponges
Coelenterata, General characters ,classification
Obelia - External Characters, Structure of Polyp and Medusa
Polymorphism,corals,coral reef formation,Platyhelminthes-G.c
Fasciola-life cycle
Classification of Nemathelminthes,G.c Annelida-G.c classification
Fasciola- type study
Fasciola- life history Leech- type study

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Syllabus for the Academic Year 2015-16

Department :ZOOLOGY Paper :IIA BIOLOGY OF CHORDATES AND EMBRYOLOGY

Class:II BSC Semester:III

Introduction and General Organization of Chordates, Introduction about Embryology
Spermatogenesis, Oogenesis
Salient features of Urochordata and Cephalochordata
Retrogressive metamorphosis, Types of Eggs, Types of Cleavages, Cyclostomes
Frog-Gastrulation, Formation of primary germlayers, Scoliodon-Morphology
Scoliodon Respiratory, Circulatory systems .Development of chick upto 24 hrs
Scoliodon Excretory , Nervous systems
Foetal membranes
Sence organs in Scoliodon
Migration in Fishes, Types of scales in Fishes
General characters and classification of Amphibia
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Rana-Morphology, Respiratory, Circulatory systems
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Regeneration with reference to Turbellarians, Lizards

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Syllabus for the Academic Year 2015-16

Department : ZOOLOGY Paper :IIIA Animal physiology & Evolution Class: III BSC Semester:V

Introduction about Physiology, Evolution
Explanation about theories-Origin of life
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Transport of Oxygen , Carbon-dioxide ,Glycolysis, Kreb's cycle
Electron transport, Oxidative phosphorylation, Open &closed circulation
Structure &Working of Mammalian Heart, Cardiac cycle
Myogenic & Neurogenic Hearts Classification of animals on the basis of exe. Products
Mammalian kidney—Structure and functions
Urine formation, Counter current mechanism
Types of Muscles, Ultra structure of skeletal muscle
Sliding filament theory of muscle contraction
Chemical changes during muscle contraction, ATP utilization & it's replenishment
Genetic basis of Evolution
Gene pool, Gene frequency, Hardy Weinberg Law
Natural selection, genetic drift, Migration
Mutations, Isolation

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Introduction about Aquaculture History, Institutes
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Introduction about Fish physiology, Anatomy
Detail view about Lymphoid organs, Blood functions
Capture, Culture Fisheries, Fish resources in India
Anemia, Leukemia- Detail account
Types of Fisheries, Blood sugar levels
Indian Major Carps, Chinese Carps
Cat Fish, Leucocytosis, Leucopania
Pearl Oyster culture, Mussel culture
Types of Immunity, Biopsy, Antigen, Haptens
Monoculture, Polyculture, Integrated culture system
Cage culture, Pen culture, Raft culture
Hypersensitivity, Entamoeba-Structure, Pathogenicity
Plasmodium Structure, Pathogenicity
Prawn Artificial culture system, Cholesterol-CVD

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Syllabus for the Academic Year 2015-16

Department :ZOOLOGY Paper :IB Animal diversity of Chordates Class:I BSc Semester:II

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Amphioxus- type study
Cyclostomes- characters, Differences
Fishes-G.C and classification, Scoliodon- morphology
Scoliodon- Digestive, Respiratory, Circulatory systems
Migration in Fishes, Amphibia- G,C and Classification
Rana Morphology
Rana- Digestive, Respiratory, Circulatory,Reproductive systems
Reptiles- G.C and Classification, Calotes- type study
Birds-G.c and classifications. Pigeon- type study
Migration in birds, Flight adaptations
Mammals-G.C and Classification
Prototheria, Metatheria characters
Dentition in Mammals, Revision

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Syllabus for the Academic Year 2016-17

Department :ZOOLOGYPaper :IIB EMBRYOLOGY,PHYSIOLOGY & ECOLOGY

Class:II BSc Semester-IV

Embryology Introduction, Spermatogenesis, Digestion process
Oogenesis, Fertilization, Absorptiation,, Respiration
Types of Eggs, types of Cleavages, Oxygen transport
Types of Cleavage, Carbon dioxide transport
Development of Frog, Formation of Foetal membranes, mammal heart
Formation, Significance of Foetal membranes, Nephron
Placenta, types, Functions, Neuron
Scope of Ecology, Temperature, Light, Muscle- structure, theories
Water, Oxygen, Carbon-di-oxide Factors, Endocrine glands
Nutrient cycles, Hormonal control of reproduction
Food chain, Food web, Energy flow in Ecosystem,, Succession
Kolleru lake- Introduction, Geographical features,oriental region
Physio-Chemical properties, Biodiversity, Ecology, Conservation

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Syllabus for the Academic Year 2016-17

Department :ZOOLOGY Paper :IIIB ANIMAL PHYSIOLOGY, GENETICS Class:III BSC Semester:VI

Structure of Nerve, Properties, Conduction of Nerve impulse
Structure of Synapse, Theories of transmission, Theories of transmission
Relation between Hypothalamus& Pituitary. Hormones of hypothalamus
Hormones of Pituitary, Pineal
Thyroid, Parathyroid, Thymus glands
Mendel's laws, Genetic interactions
Griffiths & Herchy chase experiment
Adrenal, Pancreas, DNA Replication
Endocrine control on reproduction
Menstrual cycle.. Transcription
Homeostasis—Working mechanism, Chromosomal disorders
Water & Ionic regulation by fresh water & Marine water animals
Translation, Genetic code, Lac operon, Temperation regulation Man
Human karyotype, Barr bodies, Control on Glucose level

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Induced Breeding, Biotechnology-Introduction
Scope of Biotechnology, Cloning vectors-Types
Hatchery design & Management. Seed Transportation
Nursery pond construction, Management
Plasmids Types, Enzymatic cleavage of DNA
Rearing pond- construction, Management. Pre-stocking practices
Post stocking practices
Fresh water Prawn culture, Biology of P.monodon, P.indicus
Breeding in Shrimp, Prawn Hatchery, Grow out Ponds
Transgenesis- Methods, Advantages, Fish & Goay produced
Stem cells- Types, Their application to cure Diabetes
Parkinsons diseases, symptoms, treatment with stem cells
Fish preservation methods-Merits & Demerits

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Semester-I

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Classification of Porifera ,canal systems in sponges
Coelenterata, General characters ,classification
Obelia - External Characters, Structure of Polyp and Medusa
Polymorphism,corals,coral reef formation,Platyhelminthes-G.c
Platyhelminthes-G.c
Fasciola-life cycle
Classification of Nemathelminthes,G.c Annelida-G.c classification
Fasciola- type study
Fasciola- life history Leech- type study

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Bhimavaram, W.G.Dist, A.P

Syllabus for the Academic Year 2016-17

Department :ZOOLOGY Paper :IIA Cell biology Genetics and Evolution Class:II BSc Semester:III

Introduction About Cytology, Genetics- introduction, Mendal laws
Prokaryotic Cell, virus- Detail Account, Inheritance principles
Eukaryotic Cell- Ultra Structure, Incomplete, Codomonance
Endoplasmic Reticulum, Ribosomes , Lethal allels, pleiotropy
Lysosomes- Polymorphism, Functions, Epistasis
Plasma membrane- Model, functions, Sex determination
Mitochondria= Structure, Glycolysis, Sex linked inheritance
Krebs cycle, Electron transport system, Linkage
Golgi bodies- Structure, functions, Extra chromosomal inheritance
Nucleus- Structure, Functions, Human karyotype
Chromatin- Structure, Significance, Mitosis, Hardy Weinberg law
Meiosis- Process, Significance ,Lamarkism
Various theories of Life origin on Earth
Macro evolution, Isolations
Darwinism, Neo-Darwinism, Natural selection
Variations, Speciation

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Syllabus for the Academic Year 2016-17

Department :ZOOLOGY Paper :IIIA ANIMAL PHYSIOLOGY AND EVOLUTION

Class:III BSC Semester-V

Introduction about Physiology, Types of digestion, Digestion of food
Absorption of food, Assimilation
Respiratory system, Structure of Lung
Transport of respiratory gases
Transport of oxygen & carbon di oxide
Krebs cycle, Glycolysis, Electron transport system
Natural selection
Chemiosmotic theory, Mutation
Open & closed circulation
Structure of Mammalian heart
Working of Mammalian Heart
Classification of animals based on excretory products
Urine formation, Counter current theory
Ultra structure of Muscle, Sliding filament theory
Isolation, Migration
Speciation

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Syllabus for the Academic Year 2016-17

Department: ZOOLOGY Paper : IV A Applied Zoology Class: III BSc Semester:V

Introduction about Aquaculture, History, Institutes
Earlier research activities in Immunology, Discoveries
Introduction about Fish Physiology, Anatomy
Fish resources in India, Lymphoid organs, Blood-functions
Capture, Culture Fisheries
Anemia, Leukemia- Detail account
Types of Fisheries, Blood sugar levels
Indian Major Carps, Chinese Carps
Pearl oyster culture, Mussel culture
Types of Immunity
Monoculture, Polyculture, Integrated culture, Biopsy & Autopsy
Cage culture, Penculture, Raft culture
Hypersensitivity—Types
Entamoeba-Structure, pathogenicity
Plasmodium structure, pathogenicity
Prawn culture system, Cholesterol-CVD

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Syllabus for the Academic Year 2017-18

Department :ZOOLOGY Paper :IB Animal diversity of Chordates Class:I BSC Semester:II

General Characters chordates, cephalochordates,urochordates
Amphioxus- type study
Cyclostomes- characters, Differences
Fishes-G.C and classification, Scoliodon- morphology
Scoliodon- Digestive System
Scoliodon- Respiratory system, Circulatory system
Migration in Fishes, Amphibia- G,C and Classification
Rana- Digestive, Respiratory, Circulatory,Reproductive systems
Reptiles- G.C and Classification, Calotes- type study
Birds-G.c and classifications. Pigeon- type study
Migration in birds, Flight adaptations
Mammals-G.C and Classification, prototheria, Metatheria characters
Dentition in mammals

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Syllabus for the Academic Year 2017-18

Department :ZOOLOGY Paper :IIB EMBRYOLOGY,PHYSIOLOGY & ECOLOGY

Class:II BSC Semester:IV

Embryology introduction, Spermatogenesis, Digestion of food
Oogenesis, Fertilization, Absorption, Respiration- Pulmonary. Resp.
Types of eggs, Types of cleavages, Transport of oxygen
Development of Frog, Formation of foetal membranes. Co 2 transport
Functions of Foetal membranes in Chick,
Placenta development , Structur e of mammal heart
Placenta- Types and Development, Structure of Nephron
Regeneration – Turbellarians , Lizards , Structure of Neuron
Meaning and scope of Ecology,Temperature Pongal holidays
Light, Water, Muscle- structure
Oxygen, carbon di oxide, Thyroid, parathyroid, Adrenal , Pancreas
Nutrient cycles, HC Of reproduction
Components of Ecosystem, Ecological succession
Kolleru lake Biodiversity, Oriental region
Population studies, Australian region

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Syllabus for the Academic Year 2017-18

Department : ZOOLOGY Paper : III B Immunology Class: III BSc Semester: VI

Introduction to basic concepts in Immunology , classification of Immunology
Innate Immunity
Adaptive Immunity
Cells of Immune system
Organs of Immune system
Basic properties of antigens
B and T cell epitopes . Haptens and adjuvants
Factors influencing immunogenicity
Structure, classes and functions of antibodies , Monoclonal antibodies
Structure and functions of Major histocompatibility complexes
Exogenous and Endogenous path ways of antigen presentation and processing
Basic properties and functions of cytokines
Classification and brief description of various types of hyper sensitivities
Introduction to concepts of autoimmunity and immunodeficiency
General introduction and types of vaccines
Immunological tests, Revision

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Syllabus for the Academic Year 2017-18

Department :ZOOLOGY Paper :4B PRINCIPLES OF AQUACULTURE Class: III BSC

Semester:VI

Topics to be covered
Introduction to Aquaculture
History and present status of Aquaculture
Major Culture species for Aquaculture
Fresh, Marine, Brackish water Aquaculture
Types of Aquaculture
Design and construction of Aquaculture
Seed resources
Indian Major carps, Cinese Carps, Esturaine fishes
Types of ponds. Nursery, rearing, Production Ponds
Fresh water prawn – Biology and culture aspects
Culture of Marine prawns, Oysters
Sea weeds- Biology, Culture, Applications
Culture of ornamental fishes

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Syllabus for the Academic Year 2017-18

Department :ZOOLOGY Paper :5B AQUACULTURE MANAGEMENT Class: III BSC

Semester:VI

Bundh breeding, Induced breeding, Hatchery Management
Fresh water, Marine water Prawn- Hatchery, breeding
Water, soil-quality, liming, manures
Aerators-Types & applications, Oxygen depletion problems
Feed-Natural, Artificial, Live feed, Additives, Preservatives, different storage devices
Feed formulation, storage FCR,FCE
Principles of diseases-Diagnosis & Management, Prophylaxis
Hygine and therapy of fish diseases
Fish immunization and vaccination -Fish &Shrimp, Aquaculture economics
Fish marketing methods in India.Fisheries training &education in India
Genetic improvement in Fish stock-Hybridization, Gynogenesis, Androgenesis
Polyploidy, transgenic fish, cryopreservation of gametes
Monosex, Sterile Fish-significance

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Syllabus for the Academic Year 2017-18

Department :ZOOLOGY Paper :6B Post Harvest Technology Class: III BSC

Semester:VI

Introduction, Handling of fish, Storage, Transport, Spoilage of Fish
Principles of Preservation-cleaning, Lowering & raising of tempt
Traditional & Induatrial methods of fish preservations
Fish products
Fish byproducts
Sea weeds products- Applications
Sanitation processing plants- maintenance
Quality control of fish and fishery products
Sea food quality Assurance and system- GMP
GLP- HAACP in detail
National certificate issue agencies
International certificate agency
Codex alimentarius,

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Syllabus for the Academic Year 2017-18

Department :ZOOLOGY Paper :IA Animal Diversity of Invertebrates Class:I BSC

Semester-I

Brief history, Significance of Diversity of Non Chordates
Protozoa, General characters, Classification of Protozoa
Elphidium(type study) porifera general characters
Classification of Porifera ,canal systems in sponges
Coelenterata, General characters ,classification
Obelia - External Characters, Structure of Polyp and Medusa
Polymorphism in coelenterates.
Fasciola-life cycle
Classification of Nemathelminthes,G.c Annelida-G.c classification
Fasciola- type study
Fasciola- life history Leech- type study

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Syllabus for the Academic Year 2017-18

Department :ZOOLOGY Paper :IIA CELLBIOLOGY, GENETICS & EVOLUTION

Class:II BSc Semester:III

Introduction about cytology ,Genetics
Definition, History, Prokaryotic cell-Detail account, inheritance laws
Plasma membrane- Structure, functions, Codominance, Incomplete
Endoplasmic reticulum-Structure, functions, Lethal allels, Pleitropy
Golgi bodies structure, functions, Episatsis
Lysosomes - Structure, functions, Sex determination
Ribosomes - Structure, functions, Swx linked inheritance
Mitochondria- Structure, Krebs cycle, ETS, Linkage
Nucleus- Structure, functions, Extra chromosomal inheritance
Chromatin structure, significance, Human karyotype
Mitosis- Significance, process, lamarkism
Meiosis- Process, significance, Macro evolution
Darwinism, Neodarwinism, Hardy Weinberg law
Variations,Isolation
Forces of evolution, Speciation

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Syllabus for the Academic Year 2017-18

Department :ZOOLOGY Paper: IIIA ANIMAL BIOTECHNOLOGY Class: IIIBSC

Semester:V

Introduction about biotechnology
Restriction modification system
DNA Modifying enzymes and their applications
Cloning vectors—Plasmids, YAC, BAC, Bacteriophage, M13 vectors
Cloning, linkers and adapters, gene delievary methods
PCR-technique- Basics, Applications
DNA Sequencing-different methods
Hybridization techniques, genomic library, C-DNA library
Cell culture media, hybridoma technology
Stem cells-types and applications
Artificial insemination, invitro fertilization, super ovulation ,Artificial insemination
Invitro fertilization, super ovulation, Embryo transfer, Embryo cloning
Transgenic animal-Fish & Sheep Fermintation-types
Fermintation-Feed Batch, continuous, types of fermentors, down stream processing

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Syllabus for the Academic Year 2017-18

Department : Zoology Paper :IV A Animal husbandry Class: III BSc Semester:V

General introduction to Poultry farming, Principles of Poultry housing
Poultry houses, Management of Chicks , Growers
Management of Layers and Growers
Principles of feeding, Methods of feeding ,Nutrient requirements for layers
Nutrient requirements for broilers
Poultry diseases –Viral , Bacterial
Poultry diseases –Fungal , parasitic
Selection, care and handling of hatching eggs ,Methods of hatching, egg testing
Classification of cattle breeds ;Exotic & Indian buffalo breeds
Systems of Inbreeding and Cross breeding ;Housing of dairy animals
Loose Conventional dairy barn
Cleaning and sanitation of dairy farm
Dehorning , Deworming
Vaccination programme , Care and Management of calf
Care and management heifer, milk animal
Care and management of dry and pregnant animal
Care and management of bulls and bullocks

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Syllabus for the Academic Year 2018-19

Department: ZOOLOGY Paper :IB Animal diversity of Chordates Class:I BSC Semester:II

General Characters chordates, cephalochordates,urochordates
Amphioxus- type study
Cyclostomes- characters, Differences
Fishes-G.C and classification, Scoliodon- morphology
Scoliodon- Digestive System
Scoliodon- Respiratory system, Circulatory system
Migration in Fishes, Amphibia- G,C and Classification
Rana- Digestive, Respiratory, Circulatory,Reproductive systems
Reptiles- G.C and Classification, Calotes- type study
Birds-G.c and classifications. Pigeon- type study
Migration in birds, Flight adaptations
Mammals-G.C and Classification, prototheria, Metatheria characters
Dentition in mammals

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Syllabus for the Academic Year 2018-19

Department :ZOOLOGY Paper :IIB EMBRYOLOGY,PHYSIOLOGY & ECOLOGY

Class:II BSC Semester:IV

Embryology introduction, Spermatogenesis, Digestion of food
Oogenesis, Fertilization, Absorption, Respiration- Pulmonary. Resp.
Types of eggs, Types of cleavages, Transport of oxygen
Development of Frog, Formation of foetal membranes. Co 2 transport
Functions of Foetal membranes in Chick,
Placenta development , Structur e of mammal heart
Placenta- Types and Development, Structure of Nephron
Regeneration – Turbellarians , Lizards , Structure of Neuron
Meaning and scope of Ecology,Temperature Pongal holidays
Light, Water, Muscle- structure
Oxygen, carbon di oxide, Thyroid, parathyroid, Adrenal , Pancreas
Nutrient cycles, HC Of reproduction
Components of Ecosystem, Ecological succession
Kolleru lake Biodiversity, Oriental region
Population studies, Australian region

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Syllabus for the Academic Year 2018-19

Department : ZOOLOGY Paper : III B Immunology Class: III BSc Semester: VI

Introduction to basic concepts in Immunology , classification of Immunology
Innate Immunity
Adaptive Immunity
Cells of Immune system
Organs of Immune system
Basic properties of antigens
B and T cell epitopes . Haptens and adjuvants
Factors influencing immunogenicity
Structure, classes and functions of antibodies , Monoclonal antibodies
Structure and functions of Major histocompatibility complexes
Exogenous and Endogenous path ways of antigen presentation and processing
Basic properties and functions of cytokines
Classification and brief description of various types of hyper sensitivities
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Department :ZOOLOGY Paper :4B PRINCIPLES OF AQUACULTURE Class: III BSC

Semester:VI

Topics to be covered
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Culture of ornamental fishes

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Syllabus for the Academic Year 2018-19

Department :ZOOLOGY Paper :5B AQUACULTURE MANAGEMENT Class: III BSC Semester:VI

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Fresh water, Marine water Prawn- Hatchery, breeding
Water, soil-quality, liming, manures
Aerators-Types & applications, Oxygen depletion problems
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Feed formulation, storage FCR,FCE
Principles of diseases-Diagnosis & Management, Prophylaxis
Hygine and therapy of fish diseases
Fish immunization and vaccination -Fish &Shrimp, Aquaculture economics
Fish marketing methods in India.Fisheries training &education in India
Genetic improvement in Fish stock-Hybridization, Gynogenesis, Androgenesis
Polyploidy, transgenic fish, cryopreservation of gametes
Monosex, Sterile Fish-significance

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Syllabus for the Academic Year 2018-19

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Semester:VI

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Principles of Preservation-cleaning, Lowering & raising of tempt
Traditional & Induatrial methods of fish preservations
Fish products
Fish byproducts
Sea weeds products- Applications
Sanitation processing plants- maintenance
Quality control of fish and fishery products
Sea food quality Assurance and system- GMP
GLP- HAACP in detail
National certificate issue agencies
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Syllabus for the Academic Year 2018-19

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Fasciola-life cycle
Classification of Nemathelminthes,G.c Annelida-G.c classification
Fasciola- type study
Fasciola- life history Leech- type study

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Syllabus for the Academic Year 2018-19

Department :ZOOLOGY Paper :IIA CELLBIOLOGY, GENETICS & EVOLUTION

Class:II BSc Semester:III

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Golgi bodies structure, functions, Episatsis
Lysosomes - Structure, functions, Sex determination
Ribosomes - Structure, functions, Swx linked inheritance
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Nucleus- Structure, functions, Extra chromosomal inheritance
Chromatin structure, significance, Human karyotype
Mitosis- Significance, process, lamarkism
Meiosis- Process, significance, Macro evolution
Darwinism, Neodarwinism, Hardy Weinberg law
Variations,Isolation
Forces of evolution, Speciation

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Syllabus for the Academic Year 2018-19

Department :ZOOLOGY Paper: IIIA ANIMAL BIOTECHNOLOGY Class: IIIBSC

Semester:V

Introduction about biotechnology
Restriction modification system
DNA Modifying enzymes and their applications
Cloning vectors—Plasmids, YAC, BAC, Bacteriophage, M13 vectors
Cloning, linkers and adapters, gene delievary methods
PCR-technique- Basics, Applications
DNA Sequencing-different methods
Hybridization techniques, genomic library, C-DNA library
Cell culture media, hybridoma technology
Stem cells-types and applications
Artificial insemination, invitro fertilization, super ovulation ,Artificial insemination
Invitro fertilization, super ovulation, Embryo transfer, Embryo cloning
Transgenic animal-Fish & Sheep Fermintation-types
Fermintation-Feed Batch, continuous, types of fermentors, down stream processing

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Syllabus for the Academic Year 2018-19

Department : Zoology Paper :IV A Animal husbandry Class: III BSc Semester:V

General introduction to Poultry farming, Principles of Poultry housing
Poultry houses, Management of Chicks , Growers
Management of Layers and Growers
Principles of feeding, Methods of feeding ,Nutrient requirements for layers
Nutrient requirements for broilers
Poultry diseases –Viral , Bacterial
Poultry diseases –Fungal , parasitic
Selection, care and handling of hatching eggs ,Methods of hatching, egg testing
Classification of cattle breeds ;Exotic & Indian buffalo breeds
Systems of Inbreeding and Cross breeding ;Housing of dairy animals
Loose Conventional dairy barn
Cleaning and sanitation of dairy farm
Dehorning , Deworming
Vaccination programme , Care and Management of calf
Care and management heifer, milk animal
Care and management of dry and pregnant animal
Care and management of bulls and bullocks