Teaching Plan Academic Session: 2025-26
Department of Zoology
Jagannath Barooah University, Jorhat

Name of the Teacher: *Dr. Manashi Changmai*
Designation: *Assistant Professor*
Semester: *ODD & EVEN*

Class/ Semester	Title & Code of The Paper Allotted (Credit)	Method of Teaching	Teaching Material	Unit	Topic	Period/ Hours Required	Details of the Contents	Remarks / Books
ODD SEMESTER								
Semester I (MAJOR)	**Title:** Animal Diversity & Systematics ZOOMJ-011 Credits: 4	PPT, Lecture & Discussion	Notes from Standard books, Marker board, Photographs & Chart	Unit 2	Acoelomate & Pseudo-coelomate	6 Hrs.	Characteristics & classification of Platyhelminthes & Nemathelminthes; Life cycle of *Taenia solium*. Parasitic adaptation of Nemathelminthes.	Invertebrate Zoology by **Jordan**, NCERT textbook
				Unit 3	Coelomate Protostomes	6 Hrs.	General Characteristics & classification of Annelida; Arthropoda; Mollusca & Echinodermata. Metamerism in Annelida; Social life in Insects; Pearl formation in Mollusca. Water vascular system in Starfish.	

Semester I (MINOR)	**Title:** Animal Diversity & Systematics ZOOMI-011 Credits: 4	PPT, Lecture & Discussion	Museum Specimen, Marker board, Photographs, Chart, Notes from Standard books,	Unit 2	Acoelomate	6 Hrs.	Characteristics & classification of Platyhelminthes & Nemathelminthes; Life cycle of *Taenia solium*; Parasitic adaptation of Nemathelminthes.	Invertebrate Zoology by **Jordan**, NCERT textbook
				Unit 3	Coelomate Protostome	6 Hrs.	Characteristics & classification of Annelida; Arthropoda; Mollusca & Echinodermata. Metamerism in Annelida; Social life in Insects; Pearl formation in Mollusca. Water vascular system in Starfish.	
				Unit 4	Proto-chordata	6 Hrs.	Classification & Salient features of Protochordata; Pisces & Amphibia. Osmoregulation & Migration of Fishes. Parental care in Amphibia. & Adaptation for terrestrial life.	Vertebrates by **Kotpal**
Semester III (MAJOR)	**Title:** Physiology, Histology and Histochemistry ZOOMJ-032 Credits:04	PPT, Lecture & Discussion	Marker board, Diagram, Histological slides, Microtomy Experiment	Unit 1	Histological Methods	6 Hrs.	Fixation of tissues; Staining types; Classification & properties of dyes; Structure, classification & functions of four different types of tissues of bodily systems.	**Bancroft's** Theory & Practices of Histological Techniques; **diFiore's** Atlas of Histology; Anatomy & Physiology by **G. J. Tortora.**

Semester III (MAJOR)	**Title:** Physiology, Histology and Histochemistry ZOOMJ-032 Credits:04	PPT, Lecture & Discussion	Marker board, Diagram, Histological slides, Microtomy Experiment	Unit 4	Reproductive System	6 Hrs.	Histology of Testis & Ovary; Physiology of male & female reproduction; Puberty & Menopause; Methods of contraception in male & female.	Principles of Anatomy & Physiology by **G. J. Tortora**; Medical Physiology by **A. C. Guyton**
Semester III (MINOR)	**Title:** Physiology, Histology and Histochemistry ZOOMI-031 Credits:04	PPT, Lecture & Discussion	Marker board, Diagram & Histological slides.	Unit 5	Endocrine system	12 Hrs.	Histology of Endocrine glands; Classification of hormones, Mechanism of hormone action; Regulation of their secretion; Mode of action for steroidal and non steroidal hormone; Neuroendocrine gland- hypothalamus; Placental hormones.	Principles of Anatomy & Physiology by **G. J. Tortora**; Medical Physiology by **A. C. Guyton**; Endocrinology by **Hadley**; The Cell by **Cooper**
Semester V (MAJOR)	**Title:** Molecular Biology ZOOMJ-051 Credits:04	PPT, Lecture & Discussion	Standard reference books, Diagrams & Marker board, Quantitative estimation	Unit 3	Transcription	6 Hrs.	RNA Polymerase, Mechanism of transcription in Prokaryotes & Eukaryotes; Synthesis of mRNA & rRNA	Molecular Cell Biology by **Lodish**; The Cell: A Molecular approach by **Cooper**
				Unit 6	Gene regulation and Regulatory RNAs	6 Hrs.	Transcription regulation in Prokaryotes & Eukaryotes; Lac operon & trp operon; Genetic imprinting, Riboswitch; RNA interference- miRNA & siRNA.	
Semester I (VAC)	**Title:** Environmental education	Discussion	Black board, Reference books & Notes	Unit 1	Concept of Environmental education	4 Hrs.	Meaning, Objective, Importance, Evolution & Development of environmental education;	Environmental Biology by **P.S. Verma & V. K. Agarwal**

	EEVAC-01 Credits :02						Need for public awareness; Stockholm Conference, Earth Summit.	
				Unit 2	Environment and Natural Resources	7 Hrs.	Multidisciplinary nature of environmental science; Ecosystem; Natural resources of India & their importance; Biodiversity –types, importance & threats; Conservation of Biodiversity.	Ecology by **Odum**
EVEN SEMESTER								
Semester II (MAJOR)	**Title:** Fundamentals of Biochemistry ZOOMJ-021, Credits: 04	PPT, Lecture & Discussion	Standard reference books, Marker board, Chart, Diagrams	Unit 3	Proteins	6 Hrs.	Structure, Classification & General properties of α-amino acids, Physiological importance.	Principles of Biochemistry by **Lehninger**, Biochemistry by **U. Satyanarayana & U. Chakrapani**
				Unit 4	Nucleic acids	6 Hrs.	Structure of Nitrogenous Bases, Nucleoside, Nucleotides; Nucleic acid Cot curves; Denaturation & Renaturation of DNA;Types of DNA & RNA.	
Semester II (MINOR)	**Title:** Fundamentals of Biochemistry ZOOMI-021, Credits: 04	PPT, Lecture & Discussion	Standard reference books, Marker board, Chart, Diagrams	Unit 3	Proteins	6 Hrs.	Structure, Classification & General properties of α-amino acids, Physiological importance.	Principles of Biochemistry by **Lehninger**, Biochemistry by **U. Satyanarayana & U. Chakrapani**
				Unit 4	Nucleic acids	6 Hrs.	Nitrogenous Bases, Nucleoside, Nucleotides; Nucleic acid Cot curves; Denaturation & Renaturation of DNA;Types of DNA & RNA.	

Semester IV (MAJOR)	**Title:** Principles of Ecology ZOOMJ-041 Credits: 04	PPT, Lecture & Discussion	Standard reference books, Marker Board, Photographs	Unit 1	Introduction to Ecology	6 Hrs.	History of Ecology, Autecology & Synecology, Levels of Organization, Laws of limiting factors; Physical factors.	Ecology by **Peter Stilling**
				Unit 3	Community	6 Hrs.	Characteristics of Community, Species richness, Dominance, Diversity, Abundance, Vertical stratification, Ecotone & Edge effect.	
Semester IV (MAJOR)	**Title:** Biochemistry of Metabolic Process ZOOMJ-043 Credits: 04	PPT, Lecture & Discussion	Standard reference books, Marker Board, Flow chart	Unit 2	Carbohydrate Metabolism	6 Hrs.	Glycolysis, Oxidative decarboxylation, Citric acid cycle.	Biochemistry by **L. Stryer**
				Unit 3	Lipid Metabolism	6 Hrs.	β and ω oxidation of saturated fatty acids with even & odd number of carbon atoms; Biosynthesis of Palmitic acids; Ketogenesis.	
				Unit 4	Protein Metabolism	6 Hrs.	Transamination & Deamination of amino acids; Urea cycle; Fate of carbon skeleton of Glucogenic and Ketogenic amino acids.	
Semester VI (MAJOR)	**Title:** Developmental Biology ZOOMJ-061 Credits: 04	PPT, Lecture & Discussion	Standard reference books Diagram, Marker Board	Unit 1	Introduction	4½ Hrs	Phases of Development, Cell Cell Interaction, Cytoplasmic determinants, Differentiation & Growth, Differential Gene Expression, Pattern Formation.	Developmental Biology by **Gilbert**
				Unit 2	Early Embryonic Development	3 Hrs.	Early development of Frog & Chick; Embryonic Induction & Organizer.	

Semester VI (MAJOR)	**Title:** Developmental Biology ZOOMJ-061 Credits: 04	PPT, Lecture & Discussion	Standard reference books Diagram, Marker Board	Unit 4	Post Embryonic Development	4½ Hrs	Metamorphosis, Hormonal regulation in Amphibians & Insects; Regeneration & its different modes- Epimorphosis, Morphollaxis & Compensatory regeneration; Aging: Concept & Theories.	Developmental Biology by **Gilbert**
Semester II (SEC)	**Title:** Aquarium Fishkipping ZOOSK- 021 Credits: 03	Lecture & Discussion	Field visit, Marker Board, Photograph	Unit 3	Food & Feeding of Aquarium Fish	6 Hrs	Use of Live Fish feed organisms; Preparation & Composition of formulated fish feeds.	Ichthyology by **S. K. Gupta & P.C. Gupta**
				Unit 4	Fish Transportation	6 Hrs	Live Fish Transport, Fish handling, Packing & Forwarding techniques.	
				Unit 5	Maintenance of Aquarium	6 Hrs	Budget for setting up an Aquarium.	

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