Teaching Plan – Pallwabee Duarah

Designation: Assistant Professor, Department of Zoology, J.B. University

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
Semester–I	**Environmental Education (EVEVA–011)** (Credit: 02)	Lecture, PPT, Group Discussion, Blackboard Teaching	PPTs, Charts, Case Studies, Acts documents	Unit 2	Environment and Natural Resources	6 hrs	Multidisciplinary nature, scope & importance, Ecosystem, Natural resources (types & importance), Biodiversity (definition, levels, importance, threats)	Kaushik & Kaushik (2019), Miller (Living in the Environment)
Semester–I	**Environmental Education (EVEVA–011)**	Lecture, Case Study, Field Visit	PPTs, Reports, Video Docs	Unit 4	Conservation of Environment	8 hrs	Sustainability & Sustainable Development; Conservation of land, water, forest; Afforestation; Man–animal conflict; Environmental Laws (EPA, WPA, FCA); International agreements (Montreal, Kyoto); Environmental movements (Bishnois, Chipko, Silent Valley)	Bharucha (2005), Govt. Acts documents
Semester–II	**Fundamentals of Biochemistry (ZOOMJ–021)** (Credit: 04)	Lecture, PPT, Practical Demonstration	Models, PPTs, Lab Experiments	Unit 1	Carbohydrates	10 hrs	Structure & importance: Monosaccharides, Disaccharides,	Lehninger Biochemistry, Satyanarayana & Chakrapani

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							Polysaccharides, Glycoconjugates	
Semester–II	**Fundamentals of Biochemistry (ZOOMJ–021)**	Lecture, Chalk & Talk, Tutorial	Charts, PPT, Models	Unit 3	Proteins	12 hrs	Amino acids – structure, classification, properties; Essential vs Non-essential; Proteins: bonds, structural levels, denaturation, conjugate proteins	Voet & Voet, Lehninger
Semester–II	**Fundamentals of Biochemistry (ZOOMJ–021)**	Lecture + Lab	Charts, PPT, Models	Unit 4	Nucleic acids	10 hrs	Purines & Pyrimidines, Nucleosides, Nucleotides, Cot curves, Denaturation/ Renaturation, Types of DNA & RNA	Watson – Molecular Biology of Gene
Semester–III	**Physiology, Histology & Histochemistry (ZOOMJ–032)** (Credit: 04)	Lecture, Histology Lab Work	Slides, PPTs, Models	Unit 5	Endocrine System	15 hrs	Histology of glands (pineal, pituitary, thyroid, etc.); Hormones – types, classification, secretion & regulation; Signal transduction pathways; Hypothalamus & pituitary; Placental hormones	Guyton's Physiology, Tortora
Semester–IV	**Animal Physiology: Life Sustaining Systems**	Lecture, PPT, Diagrams	Charts, Models	Unit 2	Physiology of Respiration	12 hrs	Histology of trachea & lung, mechanism of respiration, pulmonary ventilation, respiratory volumes, pigments,	Guyton & Hall, Ganong

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	(ZOOMJ–042) (Credit: 04)						O_2/CO_2 transport, dissociation curves, CO poisoning, acid–base regulation, control of respiration	
Semester–IV	**Animal Physiology (ZOOMJ–042)**	Lecture + Lab	PPTs, Diagrams	Unit 3	Renal Physiology	10 hrs	Kidney structure, nephron, excretory products, urine formation, water balance, acid–base balance	Guyton, Vander's Renal Physiology
Semester–IV	**Biochemistry of Metabolic Processes (ZOOMJ–043)** (Credit: 04)	Lecture, Blackboard, Flowcharts	PPTs, Charts	Unit 2	Carbohydrate Metabolism	14 hrs	Glycolysis, oxidative decarboxylation, TCA cycle, PPP, gluconeogenesis, glycogenolysis & glycogenesis (sequence & regulation)	Lehninger, Satyanarayana
Semester–IV	**Biochemistry of Metabolic Processes (ZOOMJ–043)**	Lecture	PPTs	Unit 3	Lipid Metabolism	10 hrs	β-oxidation & ω-oxidation of fatty acids (even/odd carbon)	Voet & Voet
Semester–V	**Principles of Genetics (ZOOMJ–052)** (Credit: 04)	Lecture, Problem Solving, Blackboard	PPTs, Charts	Unit 1	Mendelian Genetics & Extensions	14 hrs	Principles of inheritance, Chromosomal theory, dominance types, multiple alleles, epistasis, pleiotropy, penetrance & expressivity, sex-linked traits	Griffiths – Genetics, Klug

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Semester–V	**Principles of Genetics (ZOOMJ–052)**	Lecture + Tutorial	PPTs, Problems	Unit 2	Linkage, Crossing Over, Mapping	12 hrs	Cytological basis, Lod score, recombination, interference, coincidence, somatic cell hybridization	Snustad – Genetics
Semester–V	**Immunology (ZOOMJ–053)** (Credit: 04)	Lecture, Diagram, Case Study	Charts, PPTs	Unit 2	Innate & Adaptive Immunity	8 hrs	Barriers, inflammation, innate vs adaptive, passive & active immunity	Kuby Immunology
Semester–VI	**Evolutionary Biology (ZOOMJ–062)** (Credit: 04)	Lecture, Blackboard, PPT	Charts, Fossil images	Unit 1–3	Life's Beginning, Evolutionary Theories, Evidences	15 hrs	Chemogeny, RNA world, Darwinism, Neo-Darwinism, Homology, Analogy, Fossils, Geological time scale, Molecular evidence	Strickberger – Evolution
Semester–VI	**Animal Behaviour & Chronobiology (ZOOMJ–064)** (Credit: 04)	Lecture, Case Studies, Video Clips	PPTs, Videos	Unit 2	Patterns of Behaviour	10 hrs	Innate behaviours (orientation, reflexes), Learning behaviours (associative & non-associative), imprinting, habituation	Alcock – Animal Behaviour
Semester–VI	**Animal Behaviour & Chronobiology (ZOOMJ–064)**	Lecture, PPT	PPTs, Research Articles	Unit 4	Chronobiology	10 hrs	History, significance, biological clocks, chrono-pharmacology, chronotherapy	Dunlap – Chronobiology

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Semester–I	**Aquarium Fishkeeping (ZOOSK–011/021/031)** (Credit: 03)	Lecture, Field Visit, Practical Demo	Live specimens, PPT, Models	Unit 2	Biology of Aquarium Fishes	10 hrs	Characters & dimorphism of freshwater aquarium fishes; diseases, compatibility, behaviour	A Textbook of Fish Biology – Norman