

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

Name of the Teacher: Dr. Dhiramani Bhuyan
Semester: ODD

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
Sem I	ENVIRONMENTAL EDUCATION EVE VA- 011 Cr. 2	Lecture, White board, Discussion, Demonstration, Project	Textbook, Diagrams, Reference books, charts, models, etc.	1	Concept of Environmental Education	15 hrs	Meaning, objective and importance, Evolution and development of environmental education. Need for public awareness. Stockholm Conference, Earth summit.	Erach Barucha (2004). <i>Text book of Environmental Studies for Undergraduate courses</i> (Prepared for University Grants Commission) Universities Press.
				3	Environmental degradation and its impacts		Human population growth and its impacts on environment;	Dani, H.M. (1996). <i>Environmental Education</i> . Chandigarh:

							<p>land use change, deforestation, habitat fragmentation land degradation, soil erosion and desertification. Concept of environmental hazards. A brief account of air, water, soil and noise pollutions-causes, effect and control measures; Concept of climate change: Green-house effect, global warming; ozone layer depletion, acid rains and their impacts on human communities and agriculture.</p>	<p>Punjab University Publication Bureau.</p>
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				4	Conservation of Environment		Concept of sustainability and sustainable development with judicious use of land, water and forest resources; afforestation. Conservation of nature and natural resources, man- animal conflict.	<p>Purnima Smarath (2018). <i>Environmental studies</i>. Kalyani Publishers, Ludhiana.</p> <p>Pankaj Shrivastava & D.P. Singh (2002). <i>Environment Education</i>. Anmol Publication Pvt. Ltd.</p>
	AQUARIUM FISHKEEPING ZOOSK-011 Cr. 3	Lecture, White board, Power point Discussion, Demonstration, Discussion, audio- visual aids	Textbook, Diagrams, Reference books, charts, models, etc.	1	Introduction to Aquarium Fish Keeping	7	The potential scope of Aquarium Fish Industry as a Cottage Industry, Exotic and Endemic species of Aquarium Fishes.	<ul style="list-style-type: none"> • Jhingran, V.G. (1997), <i>Fish and Fisheries of India</i>, Hindustan Publishing Corporation.
		Lecture, White board, Power point Discussion,	Textbook, Diagrams, Reference books,	3	Food and feeding of Aquarium fishes	8	Use of live fish feed organisms. Preparation and composition of	<ul style="list-style-type: none"> • Gupta, S.K., Gupta, P.C.(2006), <i>General and</i>

		Demonstration, Discussion, audio- visual aids	charts, models, etc.				formulated fish feeds.	<i>applied ichthyology (fish and fisheries)</i> , S. Chand Limited, New Delhi.
		Lecture, White board, Power point Discussion, Demonstration, Discussion, audio- visual aids	Textbook, Diagrams, Reference books, charts, models, etc.	4	Fish Transportation	8	Live fish transport- Fish handling, packing and forwarding techniques	<ul style="list-style-type: none"> Jayaram, K.C. (2012), <i>The Freshwater Fishes of the Indian Region</i>, Narendra Publishing House.
Sem III	CELL BIOLOGY ZOOMJ-031 Cr. 4	Lecture, White board, Power point Discussion, Test, audio-visual aids	Textbook, Diagrams, Reference books, charts, models, etc.	1	Overview of Cells	5	Prokaryotic and Eukaryotic cells, Virus, Viroids, Mycoplasma, Prions	<ul style="list-style-type: none"> Karp, G. (2010). <i>Cell and Molecular Biology: Concepts and Experiments</i>. VI Edition. John Wiley and Sons. Inc.
		Lecture, White board, Power point Discussion, Test, audio-visual aids	Textbook, Diagrams, Reference books, charts, models, etc.	2	Plasma Membrane	4	Various models of plasma membrane structure Transport across membranes: Active and Passive transport, Facilitated transport Cell junctions: Tight junctions, Desmosomes, Gap	<ul style="list-style-type: none"> De Robertis, E.D.P. and De Robertis, E.M.F. (2006). <i>Cell and Molecular Biology</i>. VIII Edition. Lippincott

							junctions	Williams and Wilkins, Philadelphia. • Cooper, G.M. and Hausman, R.E. (2009). <i>The Cell: A Molecular Approach</i> . V Edition. ASM Press and Sunderland, Washington, D.C.; Sinauer Associates, MA. • Becker, W.M., Kleinsmith, L.J., Hardin. J. and Bertoni, G. P. (2009). <i>The World of the Cell</i> . VII Edition. Pearson Benjamin Cummings Publishing, San Francisco. • Bruce Albert, Bray Dennis, Levis
		Lecture, White board, Power point Discussion, Test, audio-visual aids	Textbook, Diagrams, Reference books, charts, models, etc.	3	Endomembrane System	6	Structure and Functions: Endoplasmic Reticulum, Golgi Apparatus, Lysosomes	
		Lecture, White board, Power point Discussion, Test, audio-visual aids	Textbook, Diagrams, Reference books, charts, models, etc.	4	Mitochondria and Peroxisomes	7	Mitochondria: Structure, Semi-autonomous nature, Endosymbiotic hypothesis Mitochondrial Respiratory Chain, Chemi-osmotic hypothesis, Peroxisomes.	
		Demonstration, Discussion	Textbook, Diagrams, Reference books, charts, models, etc.	2	Study of permanent chromosomal slides	4	polytene and lamp brush chromosome.	
		Demonstration, Discussion	Textbook, Diagrams, Reference books, charts, models, etc.	4	Preparation of permanent slide to show the presence of Barr body	4	Barr body in human female blood cells/ cheek cells.	

								Julian, Raff Martin, Roberts Keith and Watson James (2008). <i>Molecular Biology of the Cell</i> , V Edition, Garland publishing Inc., New York and London.
Sem V	IMMUNOLOGY ZOOMJ -053 Cr. 4	Lecture, White board, Power point Discussion, Test, audio- visual aids	Textbook, Diagrams, Reference books, charts, models, etc.	1	Overview of Immune System	30 hrs	Historical perspective of Immunology, Early theories of Immunology, Cells and organs of the Immune system.	<ul style="list-style-type: none"> Kindt, T. J., Goldsby, R.A., Osborne, B. A. and Kuby, J (2006). <i>Immunology</i>. VI Edition. W.H. Freeman and Company. David, M., Jonathan, B., David, R.B. and Ivan R. (2006). <i>Immunology</i>. VII Edition, Mosby, Elsevier Publication.
		Lecture, White board, Power point Discussion, Test, audio- visual aids	Textbook, Diagrams, Reference books, charts, models, etc.	3	Antigens		Antigenicity and immunogenicity, Immunogens, Adjuvants and haptens, Factors influencing immunogenicity, Band T- Cell epitopes	
		Lecture, White board, Power point	Textbook, Diagrams, Reference	5	Major Histocompatibility Complex		Endogenous and exogenous pathways of	

		Discussion, Test, audio- visual aids	books, charts, models, etc.				antigen processing and presentation.	<ul style="list-style-type: none"> Abbas, K. Abul and Lechtman H. Andrew (2003.) <i>Cellular and Molecular Immunology</i>. V Edition. Saunders publication.
		Lecture, White board, Power point Discussion, Test, audio- visual aids	Textbook, Diagrams, Reference books, charts, models, etc.	6	Cytokines		Properties and functions of cytokines, Therapeutics Cytokines	
		Lecture, White board, Power point Discussion, Test, audio- visual aids	Textbook, Diagrams, Reference books, charts, models, etc.	7	Complement System		Components and pathways of complement activation.	
		Demonstration, Discussion	Textbook, Diagrams, Reference books, charts, models, etc.	PR	Demonstration		Demonstration of lymphoid organs through Photograph	
		Demonstration, Discussion	Textbook, Diagrams, Reference books, charts, models, etc.	PR	Demonstration		Histological study of spleen, thymus and lymph nodes through slides/photographs	