

Anjuman Islam Janjira Degree College of Science

Lokmanya Tilak Road, Murud-Janjira dist. Raigarh. Maharashtra 402401

Academic Calendar

Teaching Plan for Semester-I Year: 2025-26

Course	F.Y.B.Sc. (Zoology)		Paper:	
Course Code	MJ1			
Title	Life Processes			
Credits	2 Credits (30 Lectures)			
Name of the Faculty	Javidkhan Vahabkhan Maniyar			
Month	Date	Topic	Lectures	Lecture per Month
		MODULE I- Life Processes		
July	08-07-25	Introduction to syllabus	9	8
		1.1 Movement and locomotion		
	09-07-25	1.1.1: Amoeboid movement, tube feet, flagellum		
	15-07-25	1.1.2: Ultra-structure of cilia and ciliary movements		
	16-07-25	1.1.3: Action of muscles (Role of muscles in movement)		
	16-07-25	1.2 Nutrition		
	22-07-25	1.2.1 Types of nutrition: Autotrophic and Heterotrophic.		
	22-07-25	1.2.2. Apparatus for nutrition:		
	22-07-25	1.2.2.1 Animals without and incomplete alimentary canal, ex. Amoeba, hydra		
	23-07-25	1.2.2.3. Animals with complete alimentary canal, ex. ruminants and non-ruminants		
	29-07-25	1.2.3 Brief account of physiology of digestion in vertebrates and symbiotic digestion in Ruminants.		
	29-07-25	1.3 Respiration		
	29-07-25	1.3.1 Aerobic and anaerobic respiration		
		1.3.2 Types of respiratory surfaces:		
	30-07-25	1.3.2.1 General body surface: Cell membrane - ex. Amoeba, Skin - ex. Earthworm and Frog		
	30-07-25	1.3.2.3 Trachea and spiracles, Gills of fish, Accessory respiratory organ in Fish,		
August	05-08-25	1.3.2.6 Lungs of Human.	9	8
		1.4 Circulation		
	06-08-25	1.4.1 Types of circulating fluids:		
	06-08-25	1.4.1.1 Water, Coelomic fluid, Lymph and Blood		
		1.4.2 Types of circulation		
	12-08-25	1.4.2.1 Protoplasmic streaming,		
	12-08-25	1.4.2.2 open and closed circulation,		
	13-08-25	1.4.2.3 single and double circulation.		
		1.4.3 Hearts Types,		
	19-08-25	1.4.3.1 Heart in Daphnia,		
	19-08-25	1.4.3.2 Heart of Cockroach		

	20-08-25	1.4.3.3 Heart in chordates (2, 3 and 4 chambered heart)		
		MODULE II- Life Processes-II		
		2.1 Excretion and osmoregulation		
	26-08-25	2.1.1 Concepts of osmoregulation and excretion.		
	26-08-25	2.1.2 Categorization of animals on the basis of principle nitrogenous excretory products.		
		2.2 Control and Coordination		
	27-08-25	2.2.1 Irritability in Paramoecium		
September	03-09-25	2.2.2 Structure of neuron,	9	8
	03-09-25	2.2.3 Conduction of nerve impulse		
	09-09-25	2.2.3.1 Resting potential,		
	09-09-25	2.2.3.2 Action potential		
	10-09-25	2.2.3.3 Refractory period.		
		2.2.4 Endocrine regulation:		
	16-09-25	2.2.4.1 Hormones as chemical messengers,		
	16-09-25	2.2.4.2 Feedback mechanisms.		
		2.3 Reproduction		
	17-09-25	2.3.1 Asexual Reproduction:		
	17-09-25	2.3.1.1 Binary fission in Paramoecium, Gemmule in Sponges, Budding in Hydra, Regeneration in planaria,		
		2.3.2 Sexual mode of reproduction		
	23-09-25	2.3.2.1 Gametogenesis, Structure of Mammalian Spermatozoa		
	24-09-25	2.3.2.2 structures of Mammalian Ovum		
		2.4 Fertilization		
October	30-09-25	2.4.1 External and internal fertilization	3	6
	01-10-25	2.4.2 Oviparity		
	07-10-25	Viviparity, Ovo-viviparity		
	08-10-25	Revision		
		Total	30	30

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Academic Calendar				
Practical Plan for Semester-I Year: 2025-26				
Course	F.Y.B.Sc. Zoology (NEP-2020)			Paper:
Course Code	MJP1			
Title	Major Practical-1			
Credits	2			
Name of the Faculty	Javidkhan Vahabkhan Maniyar			
Month	Date	Topic	Batch	Lecture per Month
		Major Practical-1		
	01-07-25	Study of compound microscope, care and functions of its	B	
	02-07-25	components.	A	
	03-07-25	Introduction to basic laboratory safety practices, precautions and	B	
	07-07-25	safety rules and symbols.	A	
	08-07-25	Introduction to basic laboratory safety practices, precautions and	B	

July	09-07-25	safety rules and symbols.	A
	10-07-25	Use of Fire extinguisher	B
	14-07-25		A
	15-07-25	Precaution and first aid for acid burn,	B
	16-07-25		A
	17-07-25	Precaution and first aid of chemical inhalation and the accident	B
	21-07-25		A
	22-07-25	Handling of weighing Balance and preparation of solution of different concentration (Percentage, ppm, molarity, normality).	B
	23-07-25		A
	24-07-25	Handling of weighing Balance and preparation of solution of different concentration (Percentage, ppm, molarity, normality).	B
	28-07-25		A
	29-07-25	Handling of common laboratory equipment (instrument and glassware): burner, autoclave, burette, and pipette (analytical and serological.	B
	30-07-25	Handling of common laboratory equipment (instrument and glassware): burner, autoclave, burette, and pipette (analytical and serological.	A
	31-07-25	Handling of common laboratory equipment (instrument and glassware): burner, autoclave, burette, and pipette (analytical and serological.	B
August	04-08-25		A
	05-08-25	Packaging and autoclaving of test tubes, pipettes, Petri plates, and conical flask.	B
	06-08-25		A
	07-08-25	Measurement of pH of Milk, aerated drinks, Lemon juice, etc. using pH paper and pH meter.	B
	11-08-25		A
	12-08-25	Demonstration of aseptic transfer of liquids between burners.	B
	13-08-25		A
	14-08-25	Study of Paramoecium culture to observe food vacuole, contractile vacuole and ciliary movement.	B
	18-08-25		A
	19-08-25	Study of Paramoecium culture to observe food vacuole, contractile vacuole and ciliary movement.	B
	20-08-25		A
	21-08-25	Study of nutritional apparatus: Amoeba, L.S. of Hydra, Digestive system of Cockroach, Fish, Bird, and Mammals (ruminant and non-ruminant).	B
September	01-09-25		A
	02-09-25	Study of effect of temperature on amylase activity.	B
	03-09-25		A
	04-09-25	Study of effect of pH on amylase activity.	B
	08-09-25		A
	09-09-25	Study of heart of Cockroach, Fish, Frog, Calotes, Crocodile and Mammal.	B
	10-09-25	Study of heart of Cockroach, Fish, Frog, Calotes, Crocodile and Mammal.	A
	11-09-25	Excretory apparatus in Amoeba, Planaria, Earthworm, Cockroach and Fish, Mammal.	B
	15-09-25	Excretory apparatus in Amoeba, Planaria, Earthworm, Cockroach and Fish, Mammal.	A
	16-09-25	Study of Reproductive system in Ameoba, Hydra, Planaria, Cockroach, Mammals (T.S Testes and T.S ovary).	B
	17-09-25	Study of Reproductive system in Ameoba, Hydra, Planaria, Cockroach, Mammals (T.S Testes and T.S ovary).	A
	18-09-25	Study of respiratory apparatus in Amoeba, Cockroach, Spider, Fish and Frog, Mammal.	B
	22-09-25	Study of respiratory apparatus in Amoeba, Cockroach, Spider, Fish and Frog, Mammal.	A
	23-09-25	Revision	B
	24-09-25	Revision	A
	25-09-25	Revision	B
	29-09-25	Repeatation	A
Total			60

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Academic Calendar

Practical Teaching Plan for Semester-I Year: 2025-26

Course	F.Y.B.Sc. Zoology (NEP-2020) Vocational Skill Course (VSC-a)	Vertical 04
Course Code	VSC 1a	

Title	VSC 1a: Ornamental fish Breeding and maintenance			
Credits	2 Credits			
Name of the Faculty	Javidkhan VahabKhan Maniyar			
Month	Date	Topic	Lectures	Lecture per Month
	Ornamental fish Breeding and maintenance			
July	Thursday	Identification of ornamental fishes (freshwater and marine).		20
	Thursday	Breeding set up for live bearers (Guppy, swordtail, molly)		
	Thursday	Breeding set up for egg bearers (Egg scatters goldfish, zebra fish, Egg depositors -Discus, Egg barriers- Killi fish, Mouth breeders-Arowana, Nest builders- Gourami, Siamese fighter)		
	Thursday	Setting of rearing and breeding tank.		
	Thursday	Estimation of water parameters-pH, DO, CO2 and Salinity		
August	Thursday	Experiment: Study of separation of fries from parents		20
	Thursday	Record behaviours (swimming patterns, schooling behaviour, changes in coloration, and interactions with other fish) in ornamental Fish.		
	Thursday	Study of diseases and its prevention during fish breeding.		
September	Thursday	Assignment on breeding of an ornamental fish species (e.g. Siamese fighter, guppy, etc.).		20
	Thursday	Feasibility report for setting up an ornamental fish breeding facility.		
	Thursday	Case study - Hatchery and nursery management of ornamental fishes.		
	Thursday	Visit to a fish breeding centre / facility / aquarium shop.		
			Total	60

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Academic Calendar				
PRACTICAL Plan for Semester-I Year: 2025-26				
Course	F.Y.B.Sc. Zoology (NEP-2020) Skill Enhancement Courses (SEC)			Vertical 04
Course Code	SEC1			
Title	SEC1: Aquarium Management			
Credits	2			
Name of the Faculty	Javidkhan VahabKhan Maniyar			
Month	Day	Topic	Lecture	Lecture per Month
	Aquarium Management			
July	Saturday	Types of aquariums: Freshwater (warm water, cold water), nano, marine, reef tank.		16
	Saturday	Accessories/equipment used in aquarium: Filters (mechanical, biological, chemical), Aerator, Heater, Thermometer, Lights, protein skimmer.		
	Saturday	Identification of freshwater ornamental fishes: Guppy, Molly (Poecilia sps.), Goldfish (Carassius auratus auratus), Oscars (Astronotus ocellatus), Asian arowana (Scleropages formosus), Siamese fighting fish (Betta splendens), Zebra fish (Danio rerio), Reticulated loach (Botia lohachata), Dwarf gourami (Trichogaster lalius), Denison barb (Sahyadria denisonii), and Rosy Barb (Puntius conchonius)		

	Saturday	Identification of marine ornamental fishes: Yellowtail damselfish (Chrysiptera parasema), Royal Gramma (Gramma loreto), Powder Blue Tang (Acanthurus leucosternon), Ocellaris Clown Fish (Amphiprion ocellaris), Blue Devil (Paraplesiops meleagris), and Butterfly fish (Chaetodon sps).		
August	Saturday	Types of plants: Vallisneria, Hydrilla, Azolla, Pistia, Sagittaria, Amazon Sword, Limnophila, Limnophila aquatica, Ceratophyllum, Chara,		16
	Saturday	Live fish feed: Infusoria, Rotifers, Artemia, Cladocerans, Tubifex worms, Chironomid Larvae (Blood worm),		
	Saturday	Preparation of formulated fish feed. Symptoms and treatment of fish diseases: Parasitic/Protozoa: Whit spot diseases, costiasis, whirling disease, Trichodiniasis; Bacterial: Bacterial gill rot, Dropsy, Ulcer disease, Furunculosis, Vibriosis, Columnaris, and Fish T.B.; Fungal-Saprolegniasis, Brachiomycosis, Ichthyophonosis.		
	Saturday	Estimation of ammonia and pH of aquarium water.		
September	Saturday	Determination of hardness of water.		16
	Saturday	Determination of dissolved oxygen of water, salinity		
	Saturday	Case study - Hatchery and nursery management of ornamental fishes.		
	Saturday	Visit to a fish breeding centre / facility / aquarium shop.		
October	Saturday	Assignment on setting of freshwater and / or marine aquarium.		12
	Saturday	Report Submission: Visit to aquarium fish keeping entrepreneur.		
	Saturday	Submission of feasibility report or budget for setting up an aquarium fish farm.		
			Total	60

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Academic Calendar				
Teaching Plan for Semester-II Year: 2025-26 (NEP 2020)				
Course	F.Y.B.Sc. (General Science)			Vertical 1
Course Code	MJP2			
Title	MJ2: Ecology and Biodiversity			
Credits	02 Credits (30 Lectures)			
Name of the Facu	Javidkhan VahabKhan Maniyar			
Month	Date	Topic	Lectures	Lecture per Month
	Module 1: Ecology		15	
November	18-11-25	Introduction to syllabus		4
		1.1 Concepts of Ecology:		
	19-11-25	Study of Environment, Hydrosphere,		
	25-11-25	lithosphere and Biosphere, Community, Population		
	25-11-25	Types of Ecology Autecology and synecology.		
		1.2 Types of ecosystems		
	26-11-25	Aquatic (Freshwater, estuarine, Marine		
December	02-12-25	terrestrial (Forest, Grassland and Desert)		8
		1.2.1 Food chain:		
	03-12-25	Detritus and grazing food chains		
	09-12-25	Food web, Energy flow through the ecosystem		
	10-12-25	Ecological pyramids: Number, Biomass, and Energy.		
		1.3 Population dynamics:		
	16-12-25	Density, Natality, Mortality		
	17-12-25	Fecundity, sex ratio, survivorship curves		
	23-12-25	age pyramid, dispersal and dispersion		
	24-12-25	1.3.1 Exponential and logistic growth		

		1.4 Study of Animal interactions		
January	06-01-26	Competition: Interspecific and intraspecific (any two example);		5
	07-01-26	1.4.2 Commensalism (remora fish on shark, Cattle egrets on livestock),		
	13-01-26	Mutualism (Termite and Trichonympha, bees and flowers, cleaning symbiosis in fish by prawns.		
	14-01-26	Parasitism (Ascaris and man, lice and humans),		
	20-01-26	Prey predation (Lion and deer).		
		Module 2: Biodiversity	15	
	21-01-26	2.1 Introduction to Biodiversity: Definition, Concepts, types, scope and Significance.		3
	27-01-26	2.2 Value of Biodiversity:		
	28-01-26	2.2.1 Consumptive value,		
February	03-02-26	2.2.2 Productive value,		8
	04-02-26	2.2.3 Social value, Ethical value		
	10-02-26	2.2.5 Aesthetic value, Option value.		
	11-02-26	2.3. Patterns of Biodiversity:		
	17-02-26	2.3.1 Latitudinal gradients,		
	18-02-26	2.3.1 Latitudinal gradients,		
	24-02-26	2.4. Threats to Biodiversity		
	25-02-26	2.4.1 Habitat loss		
March	03-03-26	Habitat loss		6
	04-03-26	Man-Wildlife conflict		
	10-03-26	2.4.2 Biodiversity Conservation:		
	10-03-26	Species Conservation		
	11-03-26	In-situ conservation		
	11-03-26	In-situ and Ex-situ conservation		
	17-03-26	Ex-situ conservation		
	17-03-26	2.4.2.2 Habitat Conservation		
	17-03-26	2.4.2.2 Habitat Conservation		
	18-03-26	Revision		
			Total	34

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Academic Calendar				
Teaching Plan for Semester-II Year: 2025-26 (NEP 2020)				
Course	F.Y.B.Sc. Zoology (NEP-2020)		Vertical 1	
Course Code	MJP2			
Title	Practical based on MJ2			
Credits	02 Credits			
Name of the Faculty	Javidkhan VahabKhan Maniyar			
Month	Day	Topic	Batch	Lecture per Month
Major Practical-2				
December	Monday	Identification of mammalian fauna, avian fauna, and herpeto-fauna	B	
	Tuesday	of India.	A	
	Wednesday	To study the various animal tracking system: Global Positioning	B	
	Thursday	System. Remote Sensing and Biotelemetry	A	
	Monday	Effect of climate change on biodiversity: Case study	B	
	Tuesday		A	
	Wednesday	Population estimation through Capture recapture method.	B	
	Thursday		A	
	Monday	Study of r/k selection in Catla catla, Hoplobatrachus tigrinus,	B	
	Tuesday	Panthera leo, Canis lupus, Oliev Ridley and Gyps indicus.	A	
	Wednesday	Determination of hardness of water sample.	B	
	Thursday		A	
	Monday	Determination of dissolved oxygen.	B	
	Tuesday		A	
	Wednesday	Determination of salinity of the water sample by Refractometer /	B	

January	Thursday	argentometric method.	A
	Monday	Study of population dynamics, food chain food web: (Grassland, Forest,	B
	Tuesday	Desert and Aquatic).	A
	Wednesday	Study of animal interaction: Ectoparasite (Head Louse) and Endoparasite	B
	Thursday	(Tape worm), Exo parasite (Bed Bug), mutualism (Clownfish and	A
	Monday	Estimation of water holding capacity of given soil sample.	B
	Tuesday		A
	Wednesday	Study of animal community structure by quadrat method (Field or	B
	Thursday	Simulation).	A
	Monday	Study of aquatic fauna and their ecological role; fresh water (Cladocera),	B
	Tuesday	Intertidal (Sea Star, Sea Anemone, Barnacles), deep sea (Coral, Squids,	A
	Wednesday	Using photographs / paintings / coloured drawings identify and study	B
	Thursday	ecological role of characteristic animal species (Desert- Camel, Himalayan-	A
	Monday	Identification, biology & ecological role of the following using suitable	B
	Tuesday	diagram / picture; Pangolin, blind cave fish, Ganges Dolphin.	A
	Wednesday	Paper chromatography for separation of amino acids	B
	Thursday		A
February	Monday	Separation of lipids by thin layer chromatography.	B
	Tuesday		A
	Wednesday	Separation of pigments by chalk chromatography.	B
	Thursday		A
	Monday	Measurement of optical density using colorimeter.	B
	Tuesday		A
Total			60

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Academic Calendar				
Teaching Plan for Semester-II Year: 2025-26 (NEP 2020)				
Course	F.Y.B.Sc. (General Science)		Vertical 3	
Course Code	OE (Open Elective)			
Title	Tourism Management			
Credits	02 Credits (30 Lectures)			
Name of the Facu	Javidkhan VahabKhan Maniyar			
Month	Date	Topic	Lectures	Lecture per Month
		Module 1: Tourism Overview	15	
November		Introduction to syllabus		
		Meaning of Tourism		
		Significance of Tourism		
		Types of Tourism		
		Types of Tourism		
		Types of Tourism		
		Tourists- Characteristics		
December		Tourists- Characteristics		
		Tourists- types		
		Tourists- types		
		Tourists- types		
		Tourism Products		
		Tourism Products		
		Tourism Products		
		Tourism Products		
		Tourism Products		
		Tourism Planning		
		Tourism Planning		
January		Tourism Planning		
		Tourism Planning		
		Tourism Planning		
		Guest lecture by hotel owner		
		Visit to Hotel for knowing tourist types		

		Module 2: Tour Operator and travel Agent Service	15	
		Definition of Travel Agent		
		Scope of Travel Agent		
		Functions of Travel Agent		
February		Functions of Travel Agent		
		Functions of Travel Agent		
		The Travel Market		
		The Travel Market		
		Functions of Travel Agency		
		Functions of Travel Agency		
		Functions of Travel Agency		
		Procedure of getting IATA Certificate		
March		Tour Industry- Package Tour		
		Custom Tour		
		Custom Tour		
		Arranging Accommodation for the Tourist		
		Arranging Accommodation for the Tourist		
		Arranging Accommodation for the Tourist		
		Guest lecture by hotel owner		
		Visit to Hotel for knowing tourist types		
		Field visit		
		Revision		
			Total	34