DEPARTMENT OF ZOOLOGY ACADEMIC PLAN 2022-2023
ODD SEMESTER

Week		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Name	Sem/ paper	"13/06/2022-19/06/2022"	20/06/2022-25/06/2022	27/06/2022-2/07/2022	4/7/2022-09/7/2022	11/7/2022-16/07/2022	18/07/2022-23/07/2022	25/07/2022-30/07/2022	1/8/2022-6/8/2022	8/08/2022-13/08/2022	17/08/2022-23/08/2022	24/08/2022-30/08/2022	05/09/2022-10/9/2022	12/9/2022-17/9/2022	09/09/2022-24/09/2022	26/09/2022-30/09/2022
Dr Vikrant Deshmukh	Sem. I Pracs	To be sent separately														
	Sem. III Pracs	To be sent separately														
	Sem V	An Introduction to Marine Ecology Pelagic & Benthic Communities	Physical & chemical oceanography-Dissolved gases O2 & CO2	Esturies & wet lands types of Esturies	Light & Temperature as a Physical parameters	Types of Beaches, Intertidal Communities	Physical Factors: Salinity & Pressure	"Introduction to Pollution "World Mangrove Day Celebration"."	Heavy metal Pollution Lead Copper	"Marine ecosystem: Eutrophication"	Marine Ecosystem:Coral Reef/bays /salt marshes	Nutrients: Nitrogen,Phosphorous & Silicates	class test	"Anthropogenic activities Reclamation/Destruction : oil, sewage & radiation."	"Revision: Marine ecosystem"	Revision: Physical & Chmemcial Oceanography
	Sem. V Pracs	DSC IV: Rapid field test for sulfate and nitrate content as well as base deficiency of soil	Determination of carbonates in soil by rapid titration	Analysis of community by working out ecological indices: Using transect method	Assessment 1	Analysis of community by working out ecological indices: Using quadrate method	Study of interaction between organisms	"Study of fauna of different zoogeographic regions : Palaearctic and Nearctic"	Assessment 2	Study of fauna of different geographic regions: Neotropical and Ethiopean	Identification of permanent slides/ specimens of Plasmodium, Ascaris, Wuchereria	Temporary preparation of head and mouth parts of mosquito	Assessment 3	Rapid field test for sulfate and nitrate content as well as base deficiency of soil	Determination of carbonates in soil by rapid titration	Analysis of community by working out ecological indices: Using transect method
	Sem V Pracs	DSE I 1. Identification of planktons/ mounting of planktons.	2. Identification with adaptations of intertidal communities Muddy shore	Identification with adaptations of intertidal communities rocky shore	Identification with adaptations of intertidal communities sandy shore	continuous evaluation	3. Identification of sea weeds.	4. Identification of any two or three flora and fauna of Mangroves.	5. Identification of corals.	continuous evaluation	6. Qualitative test for heavy metals – Pb, Hg, Zn.	7. Estimation of PO4-Phopshorous	Estimation of Silicates	Estimation of Nitrate-nitrites	8. Excursion / field visit	continuous evaluation
Dr. Amol Patwardhan	Sem. I Pracs	Schedule to be sent separately														
	Sem. III Pracs	Schedule to be sent separately														
	Sem III	Retrogressive metamorphosis	Swim Bladder in fish	Parental care in fish	Parental care in amphibians	Parental care in Amphibians	Neoteny in amphibians	Adaptive radiation in Reptiles	Adaptive radiation in Reptiles	Migration birds	Migration in birds	Egg laying mammals	Pouched mammals	Aquatic mammals	Aquatic mammals	Revision
	Sem V	structure of hens egg,	cleavages in chick embryo,	Formation of primitive streak,	Regression of primitive streak and its homology,	Formation of mesoderm,	24 hrs chick embryo,	Digestive system of chick embryo,	Nervous system in chick embryo,	Nervous system in chick embryo,	Extraembryonic circulation in chick embryo,	Intraembryonic circulation,	Formation of heart in chick embryo,	Revision of chick embryology,	Revision of chick embryology and immunology,	Revision of chick embryology and immunology,
	Sem V	basic structure of immune system,	types of immunity,	Lines of defences,	Phagosystosis and inflammatory response,	Acquire immunity - characteristics,	Immunoglobulin supregene family,	Antigen processing,	Immunological synapse, Activation by APC,	Mechanism of humoral response,	Cytotoxic immune response,	Antibodies structure and classes,	Antigens - haptens and epitopes,	Antiigenic determinants,		
	Sem V	Habitat selection	Home range and territoriality	Aggression	Food Selection	Dis[ersal in animal kingdom	Herding in mammals, schooling in fish	Organisation in primates	Organisation in insects	Oriental region,	australian region	african region	Antarctic region	Neotropical region	Nearctic region	Palaearctic region
	Sem V SEC	Antigen Antibody interactions	Diffusion techniques.	Immunoelectrophoresis.	Counter immunoelectrophoresis.	Rocket immuno electrophoresis.	Differences between precipitin and agglutination	radial immunoassay	Complement fixation test.	Coomb's test	ELISA	Passive agglutination reaction.	Revision	Revision	Revision	Journal submission
	Sem V Pracs	Discussion on Animal Type Earthworm: Classification and Morphological Characteristics	Discussion on Animal Type Earthworm: To Dissect and Study of Digestive System of	Discussion on Animal Type Earthworm: To Dissect and Study of Nervous System of Earthworm	Discussion on Animal Type Earthworm: To Dissect and Study of Reproductive System of	Mountings of Earthworm– a. Setae, b. Spermatheca, c. Nerve Ring, d. Septal Nephridium	Continuous Assessment - Test 1	Identification of Chick Embryos: 16 Hours, 24 Hours, 36 Hours, 48 Hours, 72 Hours etc	Mounting of Chick Embryo	Continuous Assessment - Test 2	Study of Placenta and Its Types along with its Examples	Study of Types of Dentition and Formula Derivation	Identification of Hair of Different Mammals	Revision and Doubt Solving Session	Continuous Assessment - Test 3	Journal submission
Ms. Shreya Patil	"Sem. I Theory"	Symmetry, Coelom,	Metamerism, Cephalization	On Maternity Leave												
	Sem III theory	Protozoa - skeleton, Internal Fertilization	Protozoa Asexual Reproduction, External Fertilization	On Maternity Leave												
	Sem V theory	Composition of Blood, Blood Volume, Types of Energy sources	RBC characteristics, formation, anaemia, Wood as energy Source	On Maternity Leave												
	Sem V Pracs	"Colorometric estimation of total plasma proteins by Folins method"	"Estimation of blood glucose by O-toluidine method."	On Maternity Leave												
Dr Shanti Upadhye	Sem. I Pracs	To be shared separately														
	Sem III Pracs	To be shared separately														
	Sem I theory	Introduction: concept and definitions in Biotechnology	History, achievements and milestones in Biotechnology	Branches of Biotechnology-Red, Green	Branches of Biotechnology-Blue, white	Fundamentals of laboratory techniques in biotechnology	Design, Principle, Working and Applications. Incubator, BOD Incubator,	Design, Principle, Working and ApplicationColony Counter, Magnetic Stirrer,	Design, Principle, Working and ApplicationRotary Shaker and Laminar Air Flow.	Aseptic techniques – Sterilization and Disinfection.	Design, Principle, Working and ApplicationAutoclave and Hot air Oven	Chromatography: Paper, Adsorption and TLC	Electrophoresis – Agarose and PAGE	Revision		
	Sem III Theory	Introduction to the cell, lifecycle, types	Cell cycle and its significance	Cell cycle checkpoints	Study of nucleus	Study of chromosomes - defn, types, structure	Giant Chromosomes	Replication, Expt, terminology, types	Theta model of replication	Enzymes of Replication	Mitosis. Role of microtubules	Meiosis I	Meiosis II	Cell poisons	Revision	

Week		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Dr Shanti Upadhye	Sem. V Theory	"The nature & properties of the genetic material: Griffith Avery et al Hershey-Chase experiments. Singer & Conrad experiment on Tobacco mosaic virus"	"Genetic Code 8 properties, universal decode chart"	"Wobble hypothesis concept, rules, significance"	Transcription: initiation, elongation and termination of m-RNA in eukaryotes, RNA polymerase of eukaryotes, Difference in transcription in prokaryotes and eukaryotes	Translation: Translation in eukaryotes- initiation of protein synthesis, chain elongation and chain termination	Gene regulation as exemplified by Lac Operon,	Trp Operon	Internal 1	DNA Damage Repair- Light and Dark repair	Recombinant and SOS repair	Gene mutations- terminologies, types, agents	Physical agents	Internal 2	Chemical Agents	Revision
	Sem. V Pracs	Introduction- basics, GLP	Extraction and estimation of RNA by Orcinol method	Extraction and estimation of DNA by Diphenylamine method	Use of autoclave for sterilization of equipment's for tissue culture	Media preparation and sterilization	Sterilization methods- continued	Assessment 1	To prepare cells for culture from mammalian kidney, spleen or chick embryo using trypsin	Animal tissue culture - Cont'd	Amrita Virtual Labs	Assessment 2	Problems in Molecular Biology,	Problems in recombinant DNA technology	Journal checking	Assessment 3
	Sem V SEC	Introduction to molecular techniques	General approach, significance	Genomic DNA extraction from E.coli	Purity checking of DNA by Agarose gel electrophoresis	Amrita Virtual Labs	Assessment 1	PCR	Types and applications	Separation of Proteins by PAGE	Home assignment / submission	Western blot set up for the separated proteins	Assessment 3	Journal checking		
Ms Chetna Kanekar	Sem I Theory	Introduction: Basic terminologies in genetics	History, achievements and milestones in Biotechnology	Branches of Biotechnology- Red, Green	Branches of Biotechnology- Blue, white	Fundamentals of laboratory techniques in biotechnology	Design, Principle, Working and Applications. Incubator, BOD Incubator,	Design, Principle, Working and ApplicationColony Counter, Magnetic Stirrer,	Design, Principle, Working and ApplicationRotary Shaker and Laminar Air Flow.	Aseptic techniques – Sterilization and Disinfection.	Design, Principle, Working and ApplicationAutoclave and Hot air Oven	Chromatography: Paper, Adsorption and TLC	Electrophoresis – Agarose and PAGE	Revision		
	Sem I Pracs	Practicals to be sent separately														
	Sem III Theory	Methods of sex determination: Chromosomal- XX, XO, XX-XY and ZZ-ZW	Genic Balance Theory of Sex determination in Drosophila, Environmental sex	Lyon's Hypothesis of X chromosome inactivation	X Linked inheritance	Sex limited and Sex influenced Genes	Multiple Alleles- Concept, definition, characters and symbolism	Multiple alleles- Coat colour in rabbi	ABO blood group system and Rh factor in human.	"Quantitative or Polygenic Inheritance- Concept and definition Skin colour,"	"Eye colour and Height in Human Milk gene in Cow, Meat gene in Poultry"	Concept of linkage and crossing over	"Complete and incomplete linkage, crossing over"	Three point cross	Revision	
	Sem III Practical	Practicals to be sent separately														
	Sem V- DSC I- Module 1	Animal Type– Earthworm Pheretima posthuma Subunits: Systematic position and morphology.	Digestive system	Circulatory system- first thirteen segments	Circulatory system- after thirteen segments	Circulatory system- after thirteen segments	Excretory System- types of Nephridia	Septal Nephridia structure	Reproductive system	Fertilization and cocoon formation in Earthworm	Central Nervous system	sensory receptors in earthworm	Economic Importance of Earthworm	Economic Importance of Earthworm	Revision	Revision
	Sem V DSE II- Module 2	Basic insect body plan - terminologies	Head - Head sclerites, sutures	Different type of Mouth parts in insects	Different type of Mouth parts in insects	Different type of Mouth parts in insects	Different types of Antennae	Thorax sclerites	Basic Structure of Wing, Wing venations	Wing modifications in different insects	Basic structure of leg	Different types of leg modification in insects	Abdomen morphology	Appendages on abdomen	Male and female genitalia	Revision
	Sem. V AC Practical	Study of insect head sclerites	Study of insect mouth parts	"Study of insect thoracic sclerites Study insect wing venation"	1st assessment	Study of basic insect leg	Study of insect genitalia	Mounting of spiracles	2nd assessment	"Estimation of uric acid from cockroach excreta and Estimation of Chitin"	Protein estimation from insect leg/thoracic muscles	Study of different types of insect larvae	Study of different types of insect pupae	On field identification of insects	3rd assessment	Journal correction
Ms. Madhri Padaya	Sem I Theory	Biological micro- and macro- molecules	"Monomeric constituents, polymers, and significance of carbon"	"Proteins 1.2.1 Amino acids: Types based on carboxylic, amino and aromatic group. "	"1.2.2 Peptide bond formation 1.2.3 Structure of proteins: Primary, secondary, tertiary, and quaternary structure"	"1.2.4 Biological role of proteins 1.2.5 Commercially important Amino acids and proteins."	"Carbohydrates 1.3.1 Nomenclature, classification, Glycosidic bond"	"Types of carbohydrates: (Structure, Properties and Functions) 1.3.2 Monosaccharides: Glucose, fructose, galactose Disaccharides: Maltose, sucrose, lactose Polysaccharides: Starch, glycogen, chitin, heparin 1.3.3 Biological role of carbohydrates 1.3.4 Carbohydrates of industrial significance"	On Maternity Leave							Revision
	Sem I Pracs	To be sent separately							On Maternity Leave							
									On Maternity Leave							

Week		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ms. Madhri Padaya	Sem III Theory	"Basic study of cell biology using microscope –historical perspective Different stains and staining techniques"	Structure and functions of a. Plasma membrane	"Structure and functions of b. Endoplasmic reticulum c. Ribosomes d. Golgi complex e. Mitochondria f. Lysosomes"	"Structure and functions of c. Ribosomes "	Structure and functions of d. Golgi complex	Structure and functions of e. Mitochondria f. Lysosomes	Cell organelles and disorders.	On Maternity Leave							
	Sem V Theory	". Scope of epidemiology: Perspective of epidemiology, descriptive and analytical epidemiology, epidemiological triad; stages of diseases; screening for diseases. "	"Epidemiology of communicable diseases: definition of common terms. Dynamics of diseases transmission: Reservoir, route of transmission, incubation period."	Eradicated diseases: Small pox, polio, plague, cholera.	"Prevention and control of Communicable Diseases: Notification, Isolation, Quarantine, Disinfection, Concurrent, Terminal, Precurrent , Prophylactic methods of disinfection: natural, physical and chemical.	Diseases of Viral Origin :Rabies, Dengue, Swine flue. L	"Diseases of bacterial origin :TB,National TB control programme, Leprosy, Leptospirosis."	"Diseases of Protozoan origin : Malaria, National Malaria Control Programme. d) Diseases of Helminthes origin : Ascariasis, Dracunculosis, Filariasis"	On Maternity Leave						
Ms. Sadaf Zakariya	Sem I theory	Introduction to Ecology	Ecology branches	concept of Ecosystem	concept of Ecosystem cont'd	Ecosystem services	Energy flow in ecosystem	Food chain and types	Food chain types, food web	Carbon cycle	Nitrogen cycle	Oxygen cycle	Phosphorus cycle	Animal interactions	Animal interactions cont'd	Revision
	Sem I Pracs	To be sent separately														
	"Sem. III Theory"	Introduction , basic requirements of Animal farming	Integrated farming	Integrated farming cont'd	Vermiculture intro , set up	Vermiculture methods and applications	Poultry farming	Poultry farming cont'd	Goat farming	Sheep farming	cattle farming	Buffalo farming	Dairy design & management	milk composition & preservation	milk products	Revision
	Sem III Pracs	To be sent separately														
	Sem v theory	Introduction to r DNA technology	Restriction enzymes	Cloning vectors intro, working	pBR322, pUC series, bacteriophage λ	M13, cosmids	Gene libraries – DNA labelling, probe production,	cDNA technique; linker, homopolymer	Insertion of recombinant molecule into host cell (cloning strategy): Cloning in bacterial cell	cloning in animal cell (interferon gene insertion).	DNA finger printing and its applications– PCR	Southern Blotting, RFLP	Commercial applications of biotechnology: Examples – golden rice, Nif gene	hepatitis surface antigen, Bt toxin	BioPol, Recombinant vaccines	Revision
	"Sem. V Practical "	Rapid field test for sulfate and nitrate content as well as base deficiency of soil	Determination of carbonates in soil by rapid titration	Analysis of community by working out ecological indices: Using transect method	Assessment 1	Analysis of community by working out ecological indices: Using quadrate method	Study of interaction between organisms	"Study of fauna of different zoogeographic regions : Palaearctic and Nearctic"	Assessment 2	Study of fauna of different geographic regions: Neotropical and Ethiopean	Identification of permanent slides/ specimens of Plasmodium, Ascaris, Wuchereria	Temporary preparation of head and mouth parts of mosquito	Assessment 3			
Ms. Roshni Yadav	"Sem. V Theory DSE-II Module - 3 Insect Anatomy	Introduction to Insect Anatomy	Detailed Discussion on Various Anatomical Parts of an Insect's Body	Introduction to IntegumentSystem of an Insect	Study of Integumentary Derivatives of an Insect along with its Functions	Introduction to Digestive System of an Insect	Study of Digestive Organs of an Insect along with its Functions	Introduction to Excretory System of an Insect	Study of Excretory Organs of an Insect along with its Functions	Introduction to Nervous System of an Insect	Study of Nerves, Different Parts of Insect's Brain along with its Functions	Introduction to Circulatory System of an Insect	Study of Circulatory and Specialised Respiratory Organs of an Insect along with its Functions	Introduction to Reproductive System of an Insect	Study of Reproductive Organs of an Insect along with its Functions	Revision and Doubt Solving Session
	Sem I Pracs	To be sent separately														
	"Sem. III Theory"	Introduction to Aquaculture	Detailed Discussion on Aquaculture Practices in India	Types of Aquaculture: Freshwater Aquaculture, Composite Fish Culture	"Types of Aquaculture: Sewage Fed-Fish Culture, Integrated Fish Farming"	Detailed Discussion on Basic Knowledge of Crafts and Gears	Types of Crafts and Gears along with their Examples	Types of Fisheries: Freshwater Fisheries: Major Riverine Carps and Brackish Water Fisheries	Types of Fisheries: Marine Water Fisheries: Coastal, Offshore and Deep-Sea Fisheries	Detailed Discussion on Important Capture Fisheries of India	Introduction to Fin Fisheries and Study of Fin Fish: Oil Sardine and Mackerel	Study of Fin Fish: Bombay Duck, Shark and Pomfret	Study of Crustacean Fisheries: Crabs, Lobsters and Prawns	Study of Molluscan Fisheries: Mussels, Clams, Edible Oysters and Pearl Oysters	Detailed Discussion on Process of Pearl Formation	Revision
	Sem III Pracs	To be sent separately														
	Sem v theory	Introduction to Non Conventional Fishing Methods	Types of Non Conventional Fishing Methods: Electrofishing, Light Fishing, Blast Fishing	"Types of Non Conventional Fishing Methods: Sport Fisheries, Bottom Trawling etc"	Detailed Discussion on Introduction, Background, Scope of Blast Fishing	Detailed Discussion on Methods and Effects of Blast Fishing	Detailed Discussion on Introduction,Background, Scope, of Light Fishing	Detailed Discussion on Methods and Effects of Light Fishing	Detailed Discussion on Introduction,Background, Scope, of Electro Fishing	Detailed Discussion on Methods and Effects of Electrofishing Fishing	Detailed Discussion on Introduction, Background, Scope of Bottom Trawling	Detailed Discussion on Methods, Effects and Impacts of Bottom Trawling	Introduction to Sport Fisheries and Recreational Fishing	Detailed Discussion on Introduction, Background, Scope of Sport Fishing	Detailed Discussion on Methods, Effects and Impacts of Sport Fishing	Revision and Doubt Solving Session
	"Sem. V Practical "	Discussion on Animal Type Earthworm: Classification and Morphological Characteristics	Discussion on Animal Type Earthworm: To Dissect and Study of Digestive System of Earthworm	Discussion on Animal Type Earthworm: To Dissect and Study of Nervous System of Earthworm	Discussion on Animal Type Earthworm: To Dissect and Study of Reproductive System of Earthworm	Mountings of Earthworm– a. Setae, b. Spermatheca, c. Nerve Ring, d. Septal Nephridium	Continuous Assessment - Test 1	"Identification of Chick Embryos: 16 Hours, 24 Hours, 36 Hours, 48 Hours, 72 Hours etc"	Mounting of Chick Embryo	Continuous Assessment - Test 2	Study of Placenta and Its Types along with its Examples	Study of Types of Dentition and Formula Derivation	Identification of Hair of Different Mammals	Revision and Doubt Solving Session	Continuous Assessment - Test 3	Journal Submission

Week		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ms. Meghan Verma	"Sem. III Theory"	"Paper III Economic Entomology Introduction to the chapter and outcome"	Introduction to insects	Honey bee, social life of honey bee	Honey bee mouth parts, communication, life history	Economic importance of honey bee and Apiculture	Silkworm introduction and life history	Economic importance of silkworm and Sericulture	Study of harmful insects- Aphids	Aphid- Method of insect control	Rice weevil	Rice weevil- Method of insect control	Locust	Locust- Method of control	Termite and method of control	Common insect control method
	"Sem.V Theory"	"Paper 1 Mammalian anatomy Introduction to the chapter and outcome"	The structure of integuments and its derivative , functions	Epidermal derivative, epidermal glands and scales, digitalcornification, hair	Digestive system introduction and function of digestive system	embryonic digestive tube and its evolution primary division of tube, accessory organ,	modification of elementary canal, digestive Glands,	Mammalian dentition	Introduction and function of respiratory system	Respiratory passage attract, respiratory organ	Introduction and function of circulatory system, parts of circulatory system	Erotic aches, Venus portal and lymphatic system in mammal	Introduction and function of nervous system	Evolution of cerebral hemisphere and cerebellum in mammals	Introduction and function of urinogenital system	parts of urinogenital system
	"Sem. V Practical Paper 2"	"Colorometric estimation of total plasma proteins by Folins method"	"Estimation of blood glucose by O-toluidine method."	"Estimation of serum/plasma total cholesterol by FeCl3 method."	"Estimation of serum/plasma total triglycerides by Phosphovanillin method."	Enumeration of erythrocyte-total count.	"Enumeration of leucocytes –total and differential count."	"Estimation of haemoglobin by Sahlis acid haematin method."	"Study of Lymphoid organs: Lymph node, Thymus and Spleen."	"Study of Leukemic cells for permanent slide."	Observation of bone marrow cells.	"Latex agglutination test (any available/ Rheumatoid Arthritis)"	"Determination of blood group and Rh factor-RA test serum"	Preparation of blood report.		
	Sem. V AC Theory	"DSE II Insect Classification Introduction to the chapter and outcome"	Introduction to insect	Classification of insect	Metamorphosis in insect	two orders of ametabolous insect	three orders of a ametabolous insect	four orders of ametabolous insect	four orders of hemimetabolous insect	four orders of hemimetabolous insect	four orders of hemimetabolous insect	four orders of hemimetabolous insect	four orders of holometabolous insect	four orders of holometabolous insect		
	"Sem. V Practical "	Study of insect head sclerites	Study of insect mouth parts	"Study of insect thoracic sclerites Study insect wing venation"	1st assessment	Study of basic insect leg	Study of insect genitalia	Mounting of spiracles	2nd assessment	"Estimation of uric acid from cockroach excreta and Estimation of Chitin"	Protein estimation from insect leg/thoracic muscles	Study of different types of insect larvae	Study of different types of insect pupae	On field identification of insects	3rd assessment	Journal correction

DEPARTMENT OF ZOOLOGY ACADEMIC PLAN 2022-2023
EVEN SEMESTER

Week		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Name	Sem/ paper	"07/11/2022-12/11/2022"	14/11/2022-19/11/2022	21/11/2022-26/11/2022	28/11/2022-03/12/2022	05/12/2022-10/12/2022	12/12/2022-17/12/2022	19/12/2022-24/12/2022-	02/01/2023-07/01/2023	09/01/2023-14/01/2023	16/01/2023-21/01/2023	23/01/2023-28/01/2023	30/01/2023-04/02/2023	06/02/2023-11/02/2023	13/02/2023-18/02/2023	20/02/2023-25/03/2023
Dr Vikrant Deshmukh	Sem VI SEC	Introduction to Aquarium	Visit to aquariums	Aquariums of the world	Conservation strategies adopted by aquariums	Conservation strategies adopted by aquariums	Conservation strategies adopted by aquariums	Conservation strategies adopted by aquariums								
	Sem VI	Introduction to Mammalian Endocrinology & Histology	Hormones: Properties and functions of hormones, Concept of positive and negative feedback mechanism of hormone action	Histological structure of mammalian organs: Skin	Histology structure and hormones of endocrine glands- Pituitary	"Histological structure of tooth & Tongue"	Histology and hormones of endocrine glands- adrenal	"Histological structure of artery and Vein"	Histology and hormones of endocrine glands- thyroid	Histological structure of Intestine and stomach	Histology and hormones of endocrine glands- pancreas	Histological structure of kidney & Liver, Testis & Kidney	"Hormonal Disorder: Gigantism, Dwarfism Acromegaly , Cretinism"	Hormonal Disorder: Myxedema Grave's Disease & Cushing's Disease.	Discussion & Class test	Revision
	Sem. VI Pracs	"Turbidity , Conductivity"	"Total acidity , Total alkalinity"	COD	Assessment 1	From the given data, make frequency distribution table, frequency polygon/histogram	"From the given data, derive mean and standard deviation, plot bar diagram/pie diagram."	Assessment 2	Application of Z-test	Application of t-test	Assessment 3	"Application of chi-square test of significance a. To test goodness of fit of observed and expected proportions b. To test association between two events"	Use of spreadsheet program in biostatistics.			
	"Sem. VI AC Practical "	1. 1. Identification of parasitic infections in fishes - Fungal - Dermatomycosis; Bacterial – Fin/Tail rot & Dropsy; Protozoan – Costiasis & White Spot; Worm – Leech; Crustacean – Argulosis.	2. Microbial studies: Identification of Bacilli, cocci, vibrio bacteria by using gram staining technique	3. Microbial studies: Organoleptic tests for fish	4. Estimation of lipid from fish by Folch's method.	5. Comparative Estimation of proteins from dry and fresh fish by Lowry's method.	6. Preparation of formulated feed for fish & prawn.	7. Fish dressing, Prawn peeling	8. Preparation of surimi, fish protein concentrate / fish soup powder.	9. Preparations of fish burger, fish fingers, fish/prawn pickle	10. Preparation of Isinglass	11. Identification of packaging materials: Polyolefin, Wax duplex carton, Master carton, Simple cans, and coated cans cans.	12. Project (Individual activity) and assignments (group activity).	12. Project (Individual activity) and assignments (group activity).	12. Project (Individual activity) and assignments (group activity).	12. Project (Individual activity) and assignments (group activity).

Week		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Dr. Amol Patwardhan	Sem II	Class Aves General features	Class Aves General Features	Class Aves - Types of beaks and feet	Class Aves - types of feathers	Class Aves - Classification	Class Aves - Classification	Class Mammalia General features	Class Mammalia General features	Class Mammalia adaptations	Class Mammalia classification	Class Mammalia Classification	Class Mammalia Classification			
	Sem. II Pracs	Schedule to be sent separately														
	Sem IV Pracs	Schedule to be sent separately														
	Sem IV	Ecosystem - definition and introduction.	Components of the ecosystem.	Artificial ecosystem. comparison between natural and artificial.	Polar biome.	Desert biome and grassland biome.	Forest biome.	Marine ecosystem. Zonation.	Estuarine ecosystem.	Freshwater ecosystem.	Soil - an abiotic factor.	Light - an abiotic factor.	Temperature - abiotic factor.	Precipitation - abiotic factor.	Altitude- abiotic factor.	Revision
	Sem IV	Zoo keeping - introduction..	Zoo - definition, etymology, history.	Different types of zoos	Basic requirements of an animal to be kept in a zoo.	Basic requirements of an animal to be kept in a zoo.	Staff requirements of the zoo.	Objectives of the zoo.	Basic design and requirements of the zoo.	Abnormal behaviour of zoo animals.	Basic design and requirements of the zoo.	Enclosure designs.	Types of wildlife crimes.	Methods of poaching.	Methods of smuggling.	Revision
	Sem VI	Intro to Entrepreneurial zoology - definition and concept.	Business and startup.	Types of entrepreneurship.	Characteristics of an entrepreneur.	Ecotourism - principles.	Ecotourism- benefits and disadvantages.	Wildlife photography.	Wildlife photography - advantages and disadvantages.	Environmental journalism.	Environmental journalism - advantages and disadvantages.	Zoo - tourism.	Animal behaviourist.	Environmental NGO.	Environmental NGO.	
	Sem VI	Intro to computers.	Introduction to basic hardware.	Introduction to basic hardware.	Operating system.	Programming language and Internet.	Softwares. system and application.	Bioinformatics.	Bioinformatics.	Bioinformatics.	Bioinformatics.	Bioinformatics.	Bioinformatics.	Merits and demerits of social networking.	Revision.	
	Sem VI Pracs	Introduction to entrepreneurial zoology	Study of computer hardware.	Study of business model	Continuous test.	Study of patents - Indian IPR	Environmental law	Introduction to MS Office	Continuous test	Preparation of Phylogenetic tree	Study of biological databases.	Study of extinct animals	Revision.	Revision.	Revision.	Journal submission
Ms. Shreya Patil	"Sem. II Theory"	On Maternity Leave	Metamerism, Cephalization	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	Vestigial organs	Mid sem/ Revision	Biodiversity - levels and applications	Biodiversity threats	IUCN Biodiversity hotspots and IUCN red data list	WEstern Ghats	WEstern Ghats	Indo-Burma and andaman
	Sem II Pracs	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	Schedule to be sent separately	Extremophiles, TRisomy of Autosomes	Mid Sem / Revision,	Osmoregulation concepts, Trisomy / Monosomy of sex chromosomes,				
	Sem IV theory	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	Adaptations in terrestrial invertebrates and vertebrates for keeping cool, Non-disjunction	Extremophiles, TRisomy of Autosomes	Mid Sem / Revision,	Osmoregulation concepts, Trisomy / Monosomy of sex chromosomes,	Adaptations in freshwater invertebrates for osmoregulation, types of chr. Mutation	"Adaptations in freshwater vertebrates for osmoregulation, types of point mutation"	Adaptations in marine invertebrates for osmoregulation, human genome project	Adaptations in marine vertebrates for osmoregulation,
	Sem VI theory	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	Mid sem / Revision	Random genetic drift, Soil Pollution - Causes, Agricultural practices and Mining	Gene pool, Gene flow, Migration, allelic frequency, Soil Pollution - effects and management	How to calculate allelic frequency, Types of Solid Wastes	"Hardy Weinberg Equilibrium Law, Solid waste management – 3Rs, Real life example"	Micro, Macro and Mega Evolution, EIA study	Role of Govt organizations and NGOs in pollution control	
	Sem VI Pracs	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	Types of Variations	Sympatric and Allopatric Speciation	Isolating Mechanisms	"Detection of Metal poisoning by Spot method"	"Visit to various databases and making of report"			
Dr Shanti Upadhye	"Sem. II Theory"	Introduction to tissue, properties of normal and abnormal tissue	Comparison between normal cell and cancerous cell	General discussion on 4 Types of tissue: Epithelial, Connective, Nervous and Muscular	Epithelial –A. Simple- Squamous, Columnar, Ciliated,	Glandular, Endothelial [T.S of artery and T.S. of vein]	"B. Stratified [Study of skin] * Internal 1"	Connective tissue- Areolar, Adipose,	Blood, Bone [T.S of Bone],	"Cartilage [T.S of Cartilage] *Internal 2"	Nervous - Myelinated,	Non myelinated, Glial cells	Muscular – Striated,	"Non striated, Smooth/ Cardiac *Internal 3"	Disorders related to Tissue	Revision
	Sem IV Pracs	To be shared separately														
	"Sem. VI Theory"	"Introduction- Terminologies Chemical nature of enzyme, Prosthetic grps"	"Enzyme Nomenclature Concept of Activation energy Enzyme speceficity, Models of EA"	"Mechanism of Enzyme action Enzyme kinetics - MM equation"	"LWB plot, significance of Vmax and Km Factors effecting enzyme activity"	"Factors effecting enzyme activity - Cont'd *Internal 1"	"Enzyme inhibition Enzyme Regulation Isoenzymes"	"Introduction- Terminologies Classes of chemical messengers"	"Nt- classes and examples MOA of a Nt Neurosecretion"	"X and Y organs in crustaceans Pheromones *Internal 2"	Introduction- Basic Histology of ovary and testes- revision	"Regulation of male reproductive cycle Regulation of female reproductive cycle Types of female cycles- Menstrual cycle"	"Estrous cycle- stages, examples. Endocrine regulation of pregnancy, Parturition and lactation *Internal 2"	"IVF- indications and steps. Regulation of Circulation- types of circulatory systems"	"Types of Hearts - Neurogenic and myogenic Pacemaker ECG Chemical and nervous regulation of the Heart"	Revision and Internal 3
	"Sem. VI Practical "	Blood pressure monitoring- Sphygmomanometer	ECG- normal curve, disorders	Effect of pH on acid phosphatase	Continuous assessment 1	Effect of substrate on acid phosphatase	Effect of enzyme on acid phosphatase	Effect of inhibitor on acid phosphatase	Amrita Virtual Labs	Continuous assessment 2	Study of Vaginal smears	Mounting of neurosecretory cells from cockroach	Study of LDH isoenzymes by agarose electrophoresis	Continuous assessment 3	Journal Submission	

Week		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ms Chetna Kamekar	Sem II- Theory	Hemichordates	Phylum Chordata- characteristics	Protochordates- Urochordata	Protochordates- Cephalochordata	Agnatha and Gnathostomata	Class- Cyclostomata	Pisces and its classes	Salient features of Tetrapoda- Class Amphibia	Orders of Amphibia	Class Reptilia and its classification	Sublass of Class Reptilia	Salient features of orders	Salient features of suborders and examples	Revision	Revision
	Sem II Pracs	Practicals to be sent separately														
	"DSC I Sem.VI Theory"	habit & habitat, distribution, external characters morphology	skin, exoskeleton	endoskeleton- Axial and appendicular skeleton	Digestive system alimentary canal and digestive glands	respiratory system	blood vascular system-External and internal structure of heart	Arterial system	venous system	nervous system- central nervous system	cranial nerves	receptor organs- Neuromast organs, Ampullae of lorenzeni, Olfactory organs	Eye, internal ear	Male and female urinogenital system	copulation, fertilization and development, economic and ecological importance	Revision
	"DSC I Sem. VI Practical "	Discussion on Animal Type Shark: Classification and Morphological Characteristics	Discussion on Animal Type Shark: To Dissect and Study Digestive System of Scoliodon	Discussion on Animal Type Shark: To Dissect and Study Circulatory System of Scoliodons	Discussion on Animal Type Shark: To Dissect and Study Circulatory System of Scoliodon	Discussion on Animal Type Shark: To Dissect and Study Circulatory System of Scoliodon	Mountings of Scoliodon – a. Scroll Valve, b. Nerve Fibers, c. Muscle Fibers, d. Cartilage	Continuous Assessment - Test 1	Study of Histological Structure of: a. Stomach, b. Intestine, c. Liver, d. Kidney, e. Testes, f. Ovary	Study of Histological Structure of: g. Pituitary Gland, h. Adrenal Gland, i. Thyroid Gland, j. Pancreas	Continuous Assessment - Test 2	Introduction and Discussion on Study of Clinical Conditions Associated with Endocrine Glands and Glands Malfunction with the help of photographs	Study of Clinical Conditions Associated with Endocrine Glands: a. Gigantism, b. Acromegaly, c. Dwarfism	Study of Clinical Conditions Associated with Endocrine Glands: d. Cretinism, e. Myxedema, f. Grave's Disease, g. Cushing's Disease	Continuous Assessment - Test 3	Journal Submission
	Sem. VI DSC II Practical	Blood pressure monitoring- Sphygmomanometer	ECG- normal curve, disorders	Effect of pH on acid phosphatase	Continuous assessment 1	Effect of substrate on acid phosphatase	Effect of substrate on acid phosphatase	Effect of substrate on acid phosphatase	Amrita Virtual Labs	Continuous assessment 2	Study of Vaginal smears	Mounting of neurosecretory cells from cockroach	Study of LDH isoenzymes by agarose electrophoresis	Continuous assessment 3	"Nucleic acids 1.2.1 Chemical structure of nitrogenous bases, pentoses.	Revision
Ms. Madhri Padaya	Sem II Theoty	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	"Lipids 1.1.1 Fatty acids: Structure, types and properties 1.1.2 Mono-, di- and triglycerides"	"1.1.3 Phospholipids and sphingolipids 1.1.4 Sterols and waxes 1.1.5 Biological role of lipids and commercially significant Lipids"	"Nucleic acids 1.2.1 Chemical structure of nitrogenous bases, pentoses. 1.2.2 Nucleosides and nucleotides 1.2.3 Polynucleotides: 3' 5' phosphodiester linkage	"1.2.5 Different Forms of DNA 1.2.6 Types of RNA: mRNA, t-RNA and r-RNA 1.2.7 Differences between DNA and RNA"
	Sem IV theory	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	"1. Introduction, dietary recommendations to a normal adult, infant, pregnant woman and aged. 2. Malnutrition disorders. 3. Significance of breast feeding. 4. Importance of fibres in food"	"5. Constipation, piles, anorexia, starvation, acidity flatulence, ulcers, urticaria. 6. Fasting and its significance. 7. Defects of modern food habits - mention food additives, BMI and its significance. 8. Different feeding habits - vegetarians, non-vegetarians and vegans "	9. Life style diseases- diabetes type I and II, insulinoma, hyperinsulinism	10. Alcoholism, smoking and drug addiction
	Sem VI theory	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	"1. Wild life protection and laws: Need for wild life conservation, causes of extinction of species, wild life protection act 1972, trade/commerce in wild animals, animal articles and trophies, hunting of wild animals, penalties, CITES "	2. Environmental Protection act, the environmental protection act 1986, case studies of India- implementation by companies and government, defaulters, chipko movement, Narmada river	"3. SEZ and CRZ 4. Studying the term commerce, commercial importance of Invertebrates and Vertebrates and the contribution of zoology subject towards economic development of the nation."	"5. Intellectual property rights and its importance in commerce, Patenting in India and Indian Patents Act in brief, Patenting biological organisms in India. "
	Sem VI Pracs	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	On Maternity Leave	"1. 1. Identification of parasitic infections in fishes - Fungal - Dermatomycosis; Bacterial – Fin /Tail rot & Dropsy; Protozoan & White Spot; Worm – Leech; Crus-tacean – Argulosis	"2. Microbial studies: Identification of Bacilli, cocci, vibrio bacteria by using gram staining technique and Setting up of aquarium, and submitting report- group activity"	"3. Microbial studies: Organoleptic tests for fish. 4. Estimation of lipid from fish and Setting up of aquarium, maintaining log and submitting report- group activity"	"5. Comparative Estimation of proteins from dry and fresh fish by Lowry's method and Setting up of aquarium, maintaining log and submitting report- group activity"

Week		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ms. Sadaf Zakariya	Sem II theory	Class Aves - Intro & general features	Aves Classification - Overview, Subclass 1	Aves Classification - Subclass 2 to 4	Orders of subclass 4	Orders of Subclass 4	Adaptations in Aves	Adaptations in Aves	Class Mammalia - Intro & general features	Mammalia infraclasses, Mammalia superorders	Mammalia orders	Mammalia orders	Mammalia adaptations			
	Sem II Pracs	To be sent separately														
	"Sem. IV Theory"	Animal communication - Introduction and components	Chemical signals	Light signals	Sound signals	Mimicry, deception and honesty	Imprinting and its types	Displacement behaviour	Ritualization of Displacement activities	Instinct , its significance	Decision making	Decision making	Altruism			
	Sem IV Pracs	To be sent separately														
	Sem VI theory	Definition & Scope of Toxicology	Scope of Toxicology	Naturally occuring Toxins	Microbial and plant toxins	Animal toxins	Sources of toxic compounds	Sources of toxic compounds	Dose response relationships,curves	LC50 and LD50,Acute and chronic toxicity	Margin of safety and therauptic index	Threshold dose, NOEL	MDL,LDL			
	"Sem. VI Practical "	"Turbidity , Conductivity"	"Total acidity , Total alkalinity"	COD	Assessment 1	From the given data, make frequency distribution table, frequency polygon/histogram	"From the given data, derive mean and standard deviation, plot bar diagram/pie diagram."	Assessment 2	Application of Z-test	Application of t-test	Assessment 3	"Application of chi-square test of significance a. To test goodness of fit of observed and expected proportions	b. To test association between two events"	Use of spreadsheet program in biostatistics.		
Ms. Roshni Yadav	"Sem. IV Theory Course III - Module 1	Introduction to Parasitology and Parasitism	Detailed Discussion on Study of Protozoan Parasites	Types of Parasites: Ectoparasite, Endoparasite,Monogenetic, Digenetic, Temporary, Permanent Parasites	Types of Parasites: Extracellular, Intracellular, Facultative and Accidental Parasites	Types of Host: Definitive, Intermediate, Paratenic and Reservoir Host	Host- Parasite Relationship: Effects on Parasites and Effects on Host's	Study of Protozoan Parasite: Entamoeba histolytica - Morphology, Mode of Infection, Life-cycle	Study of Protozoan Parasite: Entamoeba histolytica - Pathogenicity, Treatment, Control measures and Economics involved	Study of Protozoan Parasite: Plasmodium vivax - Morphology, Mode of Infection, Life-cycle	Study of Protozoan Parasite: Plasmodium vivax - Pathogenicity, Treatment, Control measures and Economics involved	"Study of Protozoan Parasite: Leishmania donovani - Morphology, Mode of Infection, Life-cycle	Study of Protozoan Parasite: Leishmania donovani - Pathogenicity, Treatment, Control measures and Economics involved	Study of Protozoan Parasite: Giardia lamblia - Morphology, Mode of Infection, Life-cycle	Study of Protozoan Parasite: Giardia lamblia - Pathogenicity, Treatment, Control measures and Economics involved	Revision and Doubt Solving Session
	Sem IV Pracs	To be sent separately														
	Sem. VI Theory DSE I - Module 3	Introduction to Fish By-products and Fish Value-added products	Detailed Discussion on Proximate Composition of Fish Meat and Products	Major and Minor Components in Fish Meat and Products	Brief Discussion on Fish By-products	Types and Examples of Fish By-products : Fish Protein Concentrate, Fish Maws/ Isinglass.	Types and Examples of Fish By-products : Chitosan, Fish Gelatine, Fish Silage etc.	Uses and Methodology to Prepare Fish By-products.	Brief Discussion on Fish Value-added products	Types and Examples of Fish Value-added products : Prawn Pickle, Fish Pickle, Shellfish Pickle, Prawn Chutney.	Types and Examples of Fish Value-added products : Fish Wafers, Fish Soup Powder, Fish Steaks etc.	Uses and Methodology to Prepare Fish Value-added Products.	Surimi and Imitation Products	Introduction to Fish Skin Grafting	Types of Fish Skin Grafts and Examples of Fish Skin Grafts	Advantages and Applications of Fish Skin Grafts
	Sem. VI Theory SEC Module 1	Discussion on Fundamentals of Aquarium Setup	Introduction to Basic Requirements to Setup an Aquarium, Methods and Protocols to Setup an Aquarium.	Troubleshooting and Managing the Problems arising during an Aquarium Setup.	Management and Maintenance of Water Quality	Testing and Treating the Water Quality of an Aquarium	Selection of Aquatic Animal	Methods to Provide Enrichment to the Aquarium while Setting up an Aquarium	Aquatic Animal Handling	Aquatic Animal Transport	Aquatic Animal Health	Aquatic Animal Quarantine	Fish Nutrition	Revision and Doubt Solving Session		
	Sem. VI Practical DSC 1"	Discussion on Animal Type Shark: Classification and Morphological Characteristics	Discussion on Animal Type Shark: To Dissect and Study Digestive System of Scoliodon	Discussion on Animal Type Shark: To Dissect and Study Circulatory System of Scoliodon	Discussion on Animal Type Shark: To Dissect and Study Cranial Nerves of Scoliodon	Discussion on Animal Type Shark: To Dissect and Study Urinogenital System of Scoliodon	Mountings of Scoliodon – a. Scroll Valve, b. Nerve Fibers, c. Muscle Fibers, d. Cartilage	Continuous Assessment - Test 1	Study of Histological Structure of: a. Stomach, b. Intestine, c. Liver, d. Kidney, e. Testes, f. Ovary	Study of Histological Structure of: g. Pituitary Gland, h. Adrenal Gland, i. Thyroid Gland, j. Pancreas	Continuous Assessment - Test 2	Introduction and Discussion on Study of Clinical Conditions Associated with Endocrine Glands and Glands Malfunction with the help of photographs	Study of Clinical Conditions Associated with Endocrine Glands: a. Gigantism, b. Acromegaly, c. Dwarfism	Study of Clinical Conditions Associated with Endocrine Glands: d. Cretinism, e. Myxedema, f. Grave's Disease, g. Cushing's Disease	Continuous Assessment - Test 3	Journal Submission
Ms. Meghan Verma	"Sem. IV Theory"	study of helminth and arthropod parasite	Morphology and introduction to parasitology	Taenia Solium morphology	Taenia solium Life cycle and pathogenecity	Mode of infection, treatment, prophylaxis	Ancyclostoma: Introduction and morphology	Life cycle and mode of infection	prophylaxis,pathogenicity and treatment	W. bancrofti introduction, morphology	Life cycle and pathogenecity	Mode of infection, prophylaxis and treatment	"Ascaris: Introduction and morphology, Mode of infection pathogenic city and treatment"	Bed bug Mode of infection pathogenic city and treatment	Head louse morphology ,life-cycle, treatment and mode of infection	Tick and miteMode of infection pathogenic city and treatment
	"Sem.VI Theory"	"disease in fish Introduction and outcome"	Bacterial diseases in fish	Bacterial diseases in fish	Fungal diseases in fish	Fungal diseases in fish	protozoan diseases in fish	crustacean diseases in fish	crustacean diseases in fish	helminth diseases in fish	environmental diseases in fish	viral diseases in fish	physiological diseases in fish	physiological diseases in fish		
	"Sem. VI DSC II Practical "	"Determination of LC50 for a suitable pollutant on Daphnia,"	"Effect of salt of a heavy metal on the heart beat of Daphnia."	"Effect of CCl4 on the level of enzyme activity in liver or serum acid phosphatase"	"Effect of CCl4 on the level of enzyme activity in liver or serum alkaline phosphatase"	"Effect of CCl4 on the level of enzyme activity in liver or serum aspartate amino transferase."	"Effect of CCl4 on the level of enzyme activity in liver or serum alanine"	Types of Variations	Sympatric and Allopatric Speciation	Isolating Mechanisms	"Detection of Metal poisoning by Spot method"	"Visit to various databases and making of report"				
	"Sem. VI DSE II AC Practical "	Introduction to entrepreneurial zoology	Study of computer hardware.	Study of business model	Continuous test.	Study of patents - Indian IPR	Environmental law	Introduction to MS Office	Continuous test	Preparation of Phylogenetic tree	Study of biological databases.	Study of extinct animals	Revision	Revision	Revision	Journal Submission