

SYLLABUS PLAN (2017-18)
ODD SEMESTERS

SYLLABUS PLAN (2017-18)

NAME OF THE TEACHER

- Prof. Imtiaz Khan

CLASS

- B. Sc. I (Medical), Semester-I

SUBJECT

- Zoology (Cell biology & animal diversity, Biodiversity I)

Month	THEORY	PRACTICAL
July	<p>Methods in Cell Biology: Principles of light and electron microscopes, fixation and fixatives, staining techniques (single and double).</p>	
August	<p>Organisation of Cell: Extra nuclear and nuclear ultrastructure and functions of cell organelles.</p> <p>(a) Plasma membrane: Structure, osmosis, active and passive transport, endocytosis and exocytosis.</p> <p>(b) Endoplasmic reticulum: Structure, types and associated enzymes.</p> <p>(c) Golgi Complex: Structure and functions.</p> <p>(d) Ribosomes: Types of ribosomes, their structure and functions.</p> <p>Lysosomes: Polymorphism and their function.</p> <p>Organisation of Cell: Extra nuclear and nuclear ultrastructure and functions of cell organelles.</p> <p>(e) Mitochondria: Structure, mitochondrial enzymes and the role of mitochondria in respiration.</p> <p>(f) Centrosome: Structure and functions.</p> <p>(g) Nucleus: Structure and functions of nuclear membrane, nucleolus and chromosomes.</p>	<p>Protozoa:</p> <p>Examination of cultures of <i>Euglena</i> and <i>Paramecium</i>.</p> <p>Slides:</p> <p><i>Amoeba, Euglena, Trypanosoma, Noctiluca, Eimeria, Monocystis, Paramecium (Binary fission and conjugation), Opalina, Vorticella, Balantidium, Nyctotherus & Polystomella.</i></p> <p>Porifera :</p> <p>Specimens:</p> <p><i>Sycon, Grantia, Euplectella, Hyalonema, Spongilla</i> and <i>Euspongia</i>.</p> <p>Coelenterata:</p> <p>Specimens:</p> <p><i>Porpita, Velella, Physalia, Aurelia, Rhizostoma, Metridium, Millipora, Alcyonium, Tubipora, Zoanthus, Madrepora, Favia, Fungia</i> and <i>Astrangia.</i></p> <p>Slides:</p> <p><i>Hydra (W.M.), Hydra</i> with buds, <i>Obelia</i> (colony and medusa), <i>Sertularia, Plumularia, Tubularia, Bougainvillea</i> and <i>Aurelia.</i></p>

<p>SEPTEMBER</p>	<p>Type Study-I (Protozoa to Porifera)</p> <p>1. Protozoa: Classification upto orders with brief ecological note and economic importance of the following: <i>Entamoeba, Trypanosoma, Giardia, Noctiluca, Eimeria, Opalina, Vorticella, Balantidium</i> and <i>Nyctotherus</i>. Detailed study of the following animal types: <i>Amoeba, Paramecium</i> and <i>Plasmodium</i>. Introduction to Parasitic Protozoa</p> <p>2. Porifera : Classification upto orders with brief ecological note and economic importance of the following: <i>Grantia, Euplectella, Hyalonema</i> and <i>Spongilla</i>. Detailed study of the following animal types: <i>Sycon</i></p> <p>Type Study-II (Coelenterata to Annelida)</p> <p>Coelenterata : Classification upto orders with brief ecological note and economic importance of the following : <i>Hydra, Sertularia, Plumularia, Obelia, Tubularia, Bougainvillea, Porpita, Velella, Physalia, Rhizostoma, Millipora, Aurelia, Alcyonium, Tubipora, Zoanthus, Metridium, Madrepora, Favia, Fungia</i> and <i>Astrangia</i>. Detailed study of the following animal types: <i>Obelia</i></p>	<p>Preparation of the following slides:</p> <p>Preparation of permanent whole mount stained in borax carmine : <i>Hydra, Obelia, Sertularia, Plumularia</i> and <i>Bougainvillea</i>.</p> <p>Platyhelminthes:</p> <p>Specimens: <i>Dugesia, Fasciola, Taenia</i> and <i>Echinococcus</i>.</p> <p>Slides: Miracidium, Sporocyst, Redia, Cercaria of <i>Fasciola</i>, Scolex and Proglottids of <i>Taenia</i> (mature and gravid)</p> <p>Aschelminthes: <i>Ascaris</i> (male and female), <i>Trichinella</i> and <i>Ancylostoma</i>.</p>
<p>OCTOBER</p>	<p>Platyhelminthes : Classification upto orders with brief ecological note and economic importance of the following : <i>Dugesia, Schistosoma</i> and <i>Echinococcus</i>.</p>	<p>Major dissection (demonstration): <i>Pheretima</i> (Earthworm): Digestive, reproductive and nervous systems.</p>

	<p>Detailed study of the following animal types :<i>Fasciola, Taenia</i></p> <p>Aschelminthes :</p> <p>Classification upto orders with brief ecological note and economic importance of the following:<i>Ascaris, Oxyuris</i> and <i>Wuchereria</i></p> <p>Detailed study of the following animal types:<i>Ascaris</i>, Parasitic adaptations in Helminths</p>	
NOVEMBER	<p>Detailed study of the following animal types: <i>Pheretima</i> (Earthworm)</p>	<p>Annelida:</p> <p>Specimens :</p> <p><i>Pheretima, Nereis, Heteronereis, Polynoe, Eunice, Aphrodite, Chaetopterus, Arenicola, Tubifex</i> and <i>Pontobdella</i>.</p> <p>Study of the following permanent stained preparations :</p> <ol style="list-style-type: none"> a) L.S. and T.S. <i>Sycon</i>, Gemmules, Spicules and Spongin fibres of a sponge. b) T.S. <i>Hydra</i> (Testis and ovary region) c) T.S. <i>Fasciola</i> (Different regions) d) T.S. <i>Ascaris</i> (Male and Female) <p>T.S. <i>Pheretima</i> (Pharyngeal and typhlosolar regions), setae, septal nephridia, spermathecae and ovary.</p>

NAME OF THE TEACHER
CLASS
SUBJECT

- Dr. Manish Sharma
- B. Sc. III (Medical), Semester-V
- Zoology (Developmental Biology & Genetics)

Month	Syllabus	
	Theory	Practical
July	1. Gametogenesis with reference to differentiation of spermatozoa, Vitellogenesis, role of follicle/subtesticular cells in gametogenesis	1. Study of developmental stages of frog from permanent slides
August	2. Egg maturation: egg membrane, polarity of egg 3. Fertilization: Parthenogenesis, cleavage patterns	2. Study of developmental stages of chick from permanent slides 3. Study of polytene chromosome
September	4. basic concepts of organizers and inducers and their role 5. Cleavage, Determination and Differentiation 6. Development upto three germ layers and their fate in <i>Herdmania</i> , <i>Amphioxus</i> , Frog	4. Stages of gametogenesis, structure of egg, sperm of a mammal 5. Study of Larva of <i>Herdmania</i>
October	6. Development upto three germ layers and their fate in chick and rabbit 7. Metamorphosis in <i>Herdmania</i> and Frog	6. Dermatoglyphics: Palm print taking and finger print patterns
November	8. Foetal membrane, their formation and role. 9. Mammalian placenta, its formation, types and functions	7. Project regarding developmental Biology

NAME OF THE TEACHER
CLASS
SUBJECT

- Dr. Sukhvir Kaur
- B. Sc. III (Medical), Semester-V
- Zoology (Developmental Biology & Genetics)

Month	Syllabus	
	Theory	Practical
August	Multiple Alleles – Blood group inheritance, eye colour in <i>Drosophila</i> , pseudo-allelism	Demonstration of Law of Segregation, Independent assortment and epistasis (use of coloured beads, capsules etc). Numericals for segregation and independent assortment.
September	Modification of Mendelian ratios : Non-allelic gene interaction, Modified F ₂ ratios (9 : 7, 9 : 3 : 4, 12 : 3 : 1, 13 : 3, 15 : 1, 9 : 6 : 1). Gene modifications due to incomplete dominance, lethal factors (2:1), Pleiotropic gene. Multiple factors: Qualitative and quantitative characters, Inheritance of quantitative traits (skin colour in man).	Segregation demonstration in preserved material (Maize). Cytoplasmic inheritance in <i>Mirabilis jalapa</i> . Inheritance of other human characteristics, ability to taste. PTC, thiourea. Comparison of variance in respect of pod length and number of seeds in pods.
October	Extranuclear inheritance: Chloroplast with special reference to <i>Mirabilis jalapa</i> and Kappa particles in <i>Paramecium</i> . Population Genetics: Equilibrium of gene frequencies and Hardy Weinberg Law.	Gene frequencies and random mating (coloured beads, capsules).
November	Genetic recombination in bacteria (conjugation, transduction and transformation), Recombinant DNA – technology, Genetic cloning and its applications in medicine and agriculture, DNA finger printing	Project regarding Inheritance of human characteristics, Dermatographics or developmental biology.

NAME OF THE TEACHER
CLASS
SUBJECT

- Dr. Sukhvir Kaur
- B. Sc. II (Medical), Semester-III
- Zoology (Physiology & Biochemistry)

Month	Syllabus	
	Theory	Practical
August	<p>Blood: Composition and functions of blood and lymph, molecular structure and function of haemoglobin, blood clotting, blood groups including Rh-factor, haemostasis and haemopoiesis</p> <p>Digestion: Physiology of digestion in the alimentary canal, absorption of carbohydrates, proteins, lipids</p> <p>Biochemistry: Definition and its scope, carbohydrates, lipids (classification, structure and functions)</p> <p>Enzymes: Introduction, nature, classification, mechanism of action, enzyme kinetics, inhibition and regulation, Coenzymes, factor effecting enzyme activity</p> <p>Proteins: Classification, Structure (primary, secondary, tertiary and quaternary structure), Functions</p>	<ol style="list-style-type: none"> 1. Estimation of hemoglobin content. 2. Recording of blood pressure of man. 3. Preparation and study of human blood smear. 4. Determination of blood groups of human blood sample 5. Study of TLC and DLC. 6. Determination of coagulation and bleeding time of blood in man/rat/rabbit
September	<p>Nerve and muscle: Structure of a neuron, resting membrane potential, graded potential, origin of action potential and its propagation in myelinated and non-myelinated nerve fibres, ultra-structure of skeletal muscle</p> <p>Protein metabolism: Metabolism of amino acids (oxidative deamination, transamination and decarboxylation) and Urea cycle</p> <p>Carbohydrate metabolism: Embden Meyerhof Parnas Pathway (Glycolysis), Tricarboxylic acid cycle, Hexose Monophosphate Shunt, Glycogenesis, Glycogenolysis</p> <p>Lipid metabolism: β oxidation of fatty acids, fate of glycerol, Gluconeogenesis, lipogenesis in tissues, ketosis</p>	<ol style="list-style-type: none"> 7. Qualitative tests to identify functional groups of carbohydrates in given solutions (glucose, fructose, sucrose, lactose) 8. Qualitative estimation of proteins 9. Analysis of urine for urea and glucose. 10. Study of activity of salivary amylase under optimum conditions

<p>October</p>	<p>Respiration: Pulmonary ventilation, respiratory volumes and capacities, Transport of oxygen and carbon dioxide in blood, Bohr effect, Chloride shift, Haldane effect</p> <p>Excretion: Structure of nephron, Mechanism of Urine formation, Counter-current Mechanism</p> <p>Cardiovascular system: Composition of blood, Homeostasis, Structure of heart, Origin and conduction of the cardiac impulse, Cardiac cycle</p> <p>Nucleic acids: Structure of purine and pyrimidines, nucleosides and nucleotides, functions</p>	<p>11. Study of permanent histological sections of mammalian pituitary, thyroid, pancreas, adrenal gland</p> <p>12. Study of permanent slides of spinal cord, duodenum, liver, lung, kidney, bone, cartilage, ovary and testis</p> <p>13. Field study: Visit to a clinical lab.</p>
<p>November</p>	<p>Reproduction and Endocrine Glands: Physiology of male reproduction: hormonal control of spermatogenesis; Physiology of female reproduction: hormonal control of menstrual cycle</p> <p>Structure and function of pituitary, thyroid, parathyroid, pancreas and adrenal</p>	<p>14. Study of ECG</p>

SYLLABUS PLAN (2017-18)
EVEN SEMESTERS

SYLLABUS PLAN (2017-18)

NAME OF THE TEACHER

- Dr. Imtiaz Khan

CLASS

- B. Sc. III (Medical), Semester-VI

SUBJECT

- Zoology (Applied Zoology)

Month	THEORY	PRACTICAL
January	<p>Laboratory safety rules, hazards and precautions during sample collection and laboratory investigations.</p> <p>Laboratory techniques : Colorimetry, Microscopy, Autoclaving, Centrifugation, Spectrophotometry.</p> <p>Collection, Transportation and Preservation of different clinical samples.</p> <p>Bacteriology : Sterilisation, (dry heat, moist heat, autoclave, filtration), Disinfection, Staining techniques (gram's stain, AFB stain, etc), Culture media (Defined & Synthetic media & routine laboratory media), Bacterial culture (aerobic and anaerobic), antibiotic sensitivity.</p>	<p>Demonstration of safety rules in laboratory like proper handling of paints, specimens and disposal of syringes, needles etc.</p> <p>Demonstration of the use of autoclave, centrifuge and spectrophotometer.</p>
February	<p>Haematology : Collection of blood (Venous and Capillary), Anticoagulants (merits and demerits). Romanowsky's stains. Total RBC count, Erythrocyte sedimentation rate, TLC, DLC, Eosinophil count, Platelet count, Reticulocyte count.</p> <p>Biochemistry : Protein estimation, estimation of blood urea, sugar and cholesterol, serum creatinine and uric acid, urine analysis; estimation of protein, sugar, bile salts, bile pigments,</p>	<p>Cleaning and sterilization of glassware using hot air oven, autoclave etc.</p> <p>Demonstration of parts of microscope, its functioning and care.</p> <p>Processing of clinical samples for culture and identification of pathogens : blood, throat swab, sputum, pus, urine, stool, CSF and other body fluids.</p>

	<p>ketone bodies; enzyme studies (serum transaminase, phosphatase, amylase and lipase), liver function test.</p> <p>Histopathology : Common fixatives and staining techniques, Histochemistry : Principle and method : Staining of carbohydrates, proteins and fats with bromo phenol blue, Periodic acid Schiff, Sudan Black blue and Feulgen reaction.</p>	<p>Estimation of haemoglobin using Shali's haemometer.</p> <p>Counting of WBC, RBC & DLC.</p> <p>Analysis of blood group, A, B, AB, O and Rh.</p>
<p>March</p>	<p>Introduction to Parasitology (pertaining to various terminologies in use).</p> <p>Brief Introduction to pathogenic microbes. Viruses, Rickettsiae, Spirochaetes and Bacteria.</p> <p>Brief accounts of life history, mode of infection and pathogenicity of the following pathogens with reference to man; prophylaxis and treatment :</p> <p>a. Pathogenic protozoans: <i>Entamoeba</i>, <i>Trypanosoma</i>, <i>Leishmania</i>, <i>Giardia</i>, <i>Trichomonas</i> and <i>Plasmodium</i>.</p> <p>b. Pathogenic helminthes: <i>Fasciolopsis</i>. <i>Schistosoma</i>, <i>Echinococcus</i>, <i>Ancylostoma</i>, <i>Trichinella</i>, <i>Wuchereria</i>, <i>Dracunculus</i> and <i>Oxyuris</i>.</p>	<p>Preparation of thick and thin film for malarial parasite.</p> <p>Examination of stool for demonstration of intestinal parasites.</p> <p>Study of permanent slides and specimens of parasite protozoans, helminthes, arthropods, mentioned in theory syllabus.</p> <p>Estimation of blood sugar, serum urea, protein and cholesterol.</p>

<p>April</p>	<p>Life cycle and control measures of arthropod vectors of human diseases : Malaira (<i>Anopheles stephensi</i>, <i>A culicifacies</i>) Yellow fever and Dengue, Haemorrhagic fever (<i>Aedes aegypti</i>, <i>A. albopictus</i>); Filariasis (<i>Culex pipiens fatigans</i>) <i>Mansonia sp.</i>, Japanese Encephalitis (<i>C. trinaenilorhynchus</i>).</p> <p>Epidemic deiseases such as typhoid, cholera, small pox; their occurrence and eradiction programmes.</p> <p>Brief introduction to human defence mechanisms.</p> <p>Humoral and cell mediated immune-response, Antigens-physical & chemical properties. Antibodies-structure and function of immunoglobulin M, G, A, E and D.</p> <p>Antigen and antibody interactions : Serodiagnostic assays.</p> <p>Vaccines.</p>	<p>ESR, haematocrit, bleeding time, coagulation time, prothrombin time.</p> <p>Fixation, embedding, cutting of tissue sections and their staining (routine Haematoxyline and Eosin and special staining with Hg-BPB, PAS, SBB and Feulgen reaction.</p>
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NAME OF THE TEACHER
CLASS
SUBJECT

- Dr. Sukhvir Kaur
- B. Sc. I (Medical), Semester-II
- Zoology (Biodiversity II & Ecology)

Month	THEORY	PRACTICAL
January	<p>Ecology: Subdivisions and scope of ecology.</p> <p>Ecosystem: Components, ecological energetics, food web, introduction to major ecosystems of the world.</p> <p>Ecological factors: Temperature, light and soil as ecological factors.</p> <p>Inter and Intra specific relationships: Competition, predation, parasitism, commensalisms & mutualism</p> <p>Environmental degradation: Causes, impact and control of air and water pollution.</p>	<p>Minor dissections:</p> <p>Mouth parts and trachea of cockroach, appendages of Prawn</p>
February	<p>Nutrients: Biogeochemical cycles and concept of limiting factors.</p> <p>Ecological adaptations: Morphological, physiological and behavioral adaptations in animals in different habitats.</p> <p>Environmental education: Importance of Biodiversity.</p> <p>Population: Characteristics and regulation of population.</p> <p>Natural resources: Renewable and non-renewable natural resources and their conservations.</p> <p>Environmental degradation: Causes, impact and control of soil and noise pollution (in general).</p>	<p>Minor dissections:</p> <p>radula of <i>Pila</i>,</p> <p>Major dissections:</p> <p><i>Periplaneta</i> (Cockroach): Digestive and nervous systems.</p> <p><i>Pila</i>: Pallial complex, digestive and nervous systems.</p> <p>ECOLOGY:</p> <p>Study of animal adaptations with the help of specimens, charts and models.</p> <p>Study of biotic components of an ecosystem.</p> <p>Study of different types of nests in birds.</p>

		Study and preparation of zoogeographical charts.
March	<p>Arthropoda:</p> <p>a. Classification upto orders with ecological notes and economic importance (if any) of the following: <i>Peripatus, Prawn, Lobster, Cancer (Crab) Sacculina, Eupagurus (Hermit crab), Lepas, Balanus, Apis, Lepisma (Silver fish), Schistocerca (Locust), Poeciloceris (AK Grasshopper), Gryllus (Cricket), Mantis (Praying Mantis), Cicada, Forficula (Earwig), Dragon fly, termite queen, bug, moth, beetle, Polistes, (Wasp), Bombyx (Silk moth), Millipede, Scolopendra (Centipede), Palamnaeus (Scorpion), Aranea (Spider) and Limulus (King crab).</i></p> <p>b. Detailed study of the following animal types: <i>Periplaneta (cockroach), Prawn and Social organizations in insects (honey bee and termite)</i></p> <p>Mollusca: a. Classification upto orders with ecological notes and economic importance (if any) of the following:</p> <p style="text-align: center;"><i>Chiton, Anodonta, Mytilus, Ostrea, Cardium, Pholas, Solen (Razor fish), Pecten,</i></p>	<p>Classification upto orders with morphological notes of the following animals :</p> <p>A. Arthropoda : <i>Peripatus, Palaemon (Prawn), Lobster, Cancer (Crab), Sacculina, Eupagurus (Hermit crab), Lepas, Balanus, Cyclops, Daphnia, Lepisma, Periplaneta (Cockroach), Schistocerca (Locust), Poeciloceris (AK grasshopper), Gryllus, (Cricket), Mantis (Praying mantis), Cicada, Forficula (Earwig), Dragonfly, termite queen, bug, moth, beetle, Polistes (Wasp), Apis (Honey bee), Bombyx, Pediculus (Body louse), Millipede and Centipede, Palamnaeus (Scorpion), Aranea (Spider), and Limulus (King crab).</i></p>

	<p><i>Haliotis, Patella, Aplysia, Doris, Limax, Loligo, Sepia, Octopus, Nautilus shell and Dentalium.</i></p> <p>b.Detailed study of the following animal types: <i>Pila</i></p>	
April	<p>Echinodermata: a.Classification upto orders with ecological notes and economic importance (if any) of the following:<i>Echinus, Cucumaria, Ophiothrix</i> and <i>Antedon.</i></p> <p>b.Detailed study of the following animal types: <i>Asterias</i> (Starfish) and Echinoderm larvae</p> <p>Hemichordata</p> <p>a.Classification upto orders with ecological notes and economic importance (if any) of the following: <i>Balanoglossus</i></p> <p>b.Detailed study of the following animal types: <i>Balanoglossus</i> : External characters and affinities.</p>	<p>Classification upto orders with morphological notes of the following animals :</p> <p>B. Mollusca : <i>Anodonta, Mytilus, Ostrea, Cardium, Pholas, Solen (Razor fish), Pecten, Haliotis, Patella, Aplysia, Doris, Limax, Loligo, Sepia, Octopus, Nautilus shell (Complete and T.S.), Chiton and Dentalium.</i></p> <p>C. Echinodermata: <i>Asterias, Echinus, Ophiothrix and Antedon.</i></p> <p>D. Hemichordata: <i>Balanoglossus.</i></p>

NAME OF THE TEACHER

- Prof. Supinder Kaur

CLASS

- B. Sc. II (Medical), Semester-IV

SUBJECT

- Zoology (Evolutionary Biology)

Month	Syllabus	
	Theory	Practical
January	Origin of Life: Theory of origin of Life, Chemical Origin of life, Biological Evolution Evolution: Microevolution, Macroevolution, Megaevolution (definition and examples)	1. Demonstration of Law of Segregation, Independent assortment and epistasis (use of coloured beads, capsules etc). 2. Numericals for segregation and independent assortment

February	Evidences of Organic Evolution: Homologous and Analogous Organs, Divergent and Convergent Evolution, Vestigial Organs, Evidences of Atavism, Recapitulation theory, Missing links, Connecting links Introduction to Evolutionary Theories: Lamarckism, Darwinism, Neo-Darwinism	3. Study of Mendelian Inheritance and gene interactions (Non Mendelian Inheritance) using suitable examples. Verify the results using Chi-square test. 4. Inheritance of human characteristics, ability to taste (thiourea)
March	Natural selection: (Example: Industrial melanism); Types of natural selection (Directional, Stabilizing, Disruptive), Artificial selection Species Concept: Biological species concept (Advantages and Limitations), Modes of speciation (Allopatric, Parapatric, Sympatric,), Isolating mechanism, Examples of Geographic speciation, Sibling species, Genetic drift	5. Study of fossil evidences from plaster cast models and pictures 6. Study of homology and analogy from suitable specimens/ pictures 7. Charts: a) Phylogeny of horse with diagrams/ cut outs of limbs and teeth of horse ancestors b) Darwin's Finches with diagrams/ cut outs of beaks of different species 8. Visit to Natural History Museum and submission of report
April	Fossils: Formation of Rocks, classification of fossils (Actual, Petrified and Casts, Moulds and Impressions, Trails and Foot Prints, Coprolites), Phylogeny of Horse	

NAME OF THE TEACHER

- Prof. Supinder Kaur

CLASS

- B. Sc. II (Medical), Semester-IV

SUBJECT

- Zoology (Genetics)

Month	Syllabus	
	Theory	Practical
January	Introduction to Genetics: Mendel's work on transmission of traits, Genetic Variation, Molecular basis of Genetic Information Mendelian Genetics and its Extension: Principles of Inheritance, Chromosome theory	1. Demonstration of Law of Segregation, Independent assortment and epistasis (use of

	of inheritance, Incomplete dominance and co dominance	coloured beads, capsules etc). 2. Numericals for segregation and independent assortment
February	, Lethal alleles, Epistasis, Pleiotropy, sex linked inheritance, extra-chromosomal inheritance Multiple Factors: Qualitative and quantitative characters, inheritance of quantitative traits (skin colour in man)	3. Study of Mendelian Inheritance and gene interactions (Non Mendelian Inheritance) using suitable examples. Verify the results using Chi-square test. 4. Inheritance of human characteristics, ability to taste (thiourea)
March	Mutations: Chromosomal Mutations: Deletion, Duplication, Inversion, Translocation, Aneuploidy and Polyploidy; Gene mutations: Induced versus Spontaneous mutations, Back versus Suppressor mutations	5. Study of fossil evidences from plaster cast models and pictures 6. Study of homology and analogy from suitable specimens/ pictures 7. Charts: a) Phylogeny of horse with diagrams/ cut outs of limbs and teeth of horse ancestors b) Darwin's Finches with diagrams/ cut outs of beaks of different species 8. Visit to Natural History Museum and submission of report
April	Genetic Recombination: in bacteria (conjugation, transduction and transformation), Recombinant DNA technology, Genetic cloning and its application in medicine and agriculture, DNA finger printing Population Genetics: Gene pool, Gene and Genotype frequency, Genetic equilibrium and Hardy Weinberg Law	