**PG.GOVT COLLEGE FOR GIRLS, SECTOR-42, CHANDIGARH**

**Teaching Plan Odd Semester (For UG-PG - Ongoing Classes)**

**Session (2023-2024)**

**Class: Biotech (H) 3rd Sem**   **Name of the Teacher: Dr Ruchi**

**Subject: Biochem Period : 6th**

**Paper : Room No : 111**

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| **S. No** | **Dates** | **Topics to be covered** |
| Week 1 | 21-07-2023 to 22-07-2023 | Carbohydrate metabolism: Biosynthesis and degradation of glucose |
| Week 2 | 24-07-2023 to 28-07-2023 | feeder pathways of glycolysis; Kreb cycle, amphibolic nature of the Kreb cycle; regulation of Kreb cycle, |
| Week 3 | 31-07-2023 to 05-08-2023 | regulation of gluconegenesis. Glycogen metabolism. |
| Week 4 | 07-08-2023 to 12-08-2023 | Mitochondrial electron transport chain |
| Week 5 | 14-08-2023 to 19-08-2023 | oxidative phosphorylation; regulation of ATP synthesis |
| Week 6 | 21-08-2023 to 26-08-2023 | Lipid Metabolism: Biosynthesis and degradation of fatty acids; β-oxidation of saturated, unsaturated and polyunsaturated fatty acids. |
| Week 7 | 28-08-2023 to 02-09-2023 | Formation of ketone bodies, their function and physiological significance. Fatty acid synthesis |
| Week 8 | 04-09-2023 to 09-09-2023 | multifunctional enzyme complex in eukaryotes, function of citrate. Regulation of fatty acid metabolism. |
| Week 9 | 11-09-2023 to 16-09-2023 | Cholesterol metabolism: Biosynthesis of cholesterol and its regulation. |
| Week 10 | 18-09-2023 to 23-09-2023 | Nucleic acid metabolism: Biosynthesis of purine and pyrimidine nucleotides; salvage reactions. |
| Week 11 | 25-09-2023 to 30-09-2023 | Catabolism of purines and pyrimidines, urea cycle. |
| Week 12 | 03-10-2023 to 07-10-2023 | Amino acid metabolism: Biosynthesis of nutritionally non-essential amino acids; catabolism of carbon skeleton of amino acids. |
| Week 13 | 09-10-2023 to 14-10-2023 | Conversion of amino acids to specialized products; amino acids as precursors of porphyrins, bile pigments and biogenic amines. |
| **Mid Semester Exam (16th October 2023 – 21st October, 2023)** | | |
| Week 15 | 25-10-2023 to 27-10-2023 | Metabolism: Metabolic pathways, biochemical reaction mechanism, energy rich metabolites. |
| Week 16 | 31-10-2023 to 04-11-2023 | Coupled reactions, substrate level phosphorylation. Importance of ATP: Structural basis of high phosphoryl transfer potential of ATP. |
| Week 17 | 06-11-2023 to 11-11-2023 | Sources of cellular energy, activated carriers. Regulation and evolution of metabolic pathways. |
| Week 18 | 14-11-2023 to 18-11-2023 | revision |

**PG.GOVT COLLEGE FOR GIRLS, SECTOR-42, CHANDIGARH**

**Teaching Plan Odd Semester (For UG-PG - Ongoing Classes)**

**Session (2023-2024)**

**Class: Biotech (H) 5th Sem**  **Name of the Teacher: Dr Ruchi**

**Subject: Enzymology Period : 1st**

**Paper : Room No : 219**

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| **S. No** | **Dates** | **Topics to be covered** |
| Week 1 | 21-07-2023 to 22-07-2023 | Structure and functions of enzymes: Historical background and general properties of enzymes, concept of active centre, binding sites, stereo specificity and ES complex formation, activation energy |
| Week 2 | 24-07-2023 to 28-07-2023 | Evidences for enzyme-substrate complex; Lock and key, Induced fit and Transition state hypotheses |
| Week 3 | 31-07-2023 to 05-08-2023 | Coenzymes and Cofactors- Prosthetic group, coenzymes involved in different metabolic pathways |
| Week 4 | 07-08-2023 to 12-08-2023 | Factors Affecting the Enzyme Activity: Concentration, pH and temperature. Kinetics of a single substrate enzyme catalysed reaction, derivation of Michealis-Menten Equation |
| Week 5 | 14-08-2023 to 19-08-2023 | significance of Km value, Vmax, Turnover number, Kcat. Enzyme activity, international units, specific activity |
| Week 6 | 21-08-2023 to 26-08-2023 | Enzymes as thrombolytic agents, Anti-inflammatory agents, streptokinase, Isoenzymes |
| Week 7 | 28-08-2023 to 02-09-2023 | Enzyme Regulation: Feedback inhibition, Allosteric Regulation |
| Week 8 | 04-09-2023 to 09-09-2023 | Covalent Modification and Proteolytic Activation |
| Week 9 | 11-09-2023 to 16-09-2023 | Organization of enzymes in the cell, localization, enzymes in membranes. |
| Week 10 | 18-09-2023 to 23-09-2023 | Acid-base catalysis, covalent catalysis, Metal ion catalysis, multienzyme complexes |
| Week 11 | 25-09-2023 to 30-09-2023 | ribozymes, catalytic antibodies, Allosteric enzymes. |
| Week 12 | 03-10-2023 to 07-10-2023 | Applications of Enzymes: Immobilized enzymes, industrial applications of immobilized enzymes |
| Week 13 | 09-10-2023 to 14-10-2023 | Thermophilic enzymes, amylases, lipases |
| **Mid Semester Exam (16th October 2023 – 21st October, 2023)** | | |
| Week 15 | 25-10-2023 to 27-10-2023 | Proteolytic enzymes in meat and leather industry |
| Week 16 | 31-10-2023 to 04-11-2023 | cellulose degrading enzymes, Metal degrading enzymes |
| Week 17 | 06-11-2023 to 11-11-2023 | enzymes used in fermentation processes |
| Week 18 | 14-11-2023 to 18-11-2023 | revision |

**PG.GOVT COLLEGE FOR GIRLS, SECTOR-42, CHANDIGARH**

**Teaching Plan Odd Semester (For Undergraduate Classes - First Year)**

**Session (2023-2024)**

**Class: biotech (H) 1Sem**   **Name of the Teacher: Dr Ruchi**

**Subject: Intro to Biotech Period : 2nd (mon & wed)**

**Paper : Room No : 111**

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| **S. No** | **Dates** | **Topics to be covered** |
| Week 1 | 21-07-2023 to 22-07-2023 | Structure and function of the cell: the basic unit of life |
| Week 2 | 24-07-2023 to 28-07-2023 | Structure and function of the cell: the basic unit of life, Prokaryotic and Eukaryotic cells |
| Week 3 | 31-07-2023 to 05-08-2023 | Biomolecules in a cell (proteins) |
| Week 4 | 07-08-2023 to 12-08-2023 | Introduction to basic techniques like sterilization, centrifugation |
| Week 5 | 14-08-2023 to 19-08-2023 | electrophoresis, chromatography |
| Week 6 | 21-08-2023 to 26-08-2023 | Sonication, Applications of biotechnology: today and tomorrow |
| Week 7 | 28-08-2023 to 02-09-2023 | Basics of Biotechnology in fermentation processes |
| Week 8 | 04-09-2023 to 09-09-2023 | Green technology to control pollution. |
| Week 9 | 11-09-2023 to 16-09-2023 | introduction to gene therapy. |
| Week 10 | 18-09-2023 to 23-09-2023 | introduction to gene therapy. |
| Week 11 | 25-09-2023 to 30-09-2023 | Biotechnology and society: genetically modified organisms (GMOs) - transgenic plants and animals and their applications in biotechnology. |
| Week 12 | 03-10-2023 to 07-10-2023 | Biotechnology and society: genetically modified organisms (GMOs) - transgenic plants and animals and their applications in biotechnology. |
| Week 13 | 09-10-2023 to 14-10-2023 | Role of biotechnology in diagnostics |
| **Mid Semester Exam (16th October 2023 – 21st October, 2023)** | | |
| Week 15 | 25-10-2023 to 27-10-2023 | Public concerns and risks associated with genetic engineering: Bioterrorism and biowarfare |
| Week 16 | 31-10-2023 to 04-11-2023 | Ethical, social and legal implications of biotechnology |
| Week 17 | 06-11-2023 to 11-11-2023 | Ethical, social and legal implications of biotechnology |
| Week 18 | 14-11-2023 to 18-11-2023 | Revision |

**PG.GOVT COLLEGE FOR GIRLS, SECTOR-42, CHANDIGARH**

**Teaching Plan Odd Semester (For UG-Ongoing Classes)**

**Session (2023-2024)**

**Class: B.Sc. BTH 3RD Sem Name of the Teacher: Rachana Rana**

**Subject: Plant tissue Culture Period :5(1,2,4), 6(3), 2 (5). 7 (6)**

**Paper : Room No : 111**

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| **S. No** | **Dates** | **Topics to be covered** |
| Week 1 | 21-07-2023 to 22-07-2023 | Cellular totipotency and differentiation in plants. |
| Week 2 | 24-07-2023 to 28-07-2023 | Plant Culture Media and their composition. |
| Week 3 | 31-07-2023 to 05-08-2023 | Sterilization techniques for glassware and tissue culture media. |
| Week 4 | 07-08-2023 to 12-08-2023 | Micropropagation: Establishment of aseptic culture, various stages, advantages and disadvantages. |
| Week 5 | 14-08-2023 to 19-08-2023 | Organogenesis; somatic embryogenesis; |
| Week 6 | 21-08-2023 to 26-08-2023 | Synthetic seeds somaclonal variation, its genetic basis and application in crop improvement. |
| Week 7 | 28-08-2023 to 02-09-2023 | Cell/callus line selection for resistance to herbicide, stress and diseases. |
| Week 8 | 04-09-2023 to 09-09-2023 | Role of tissue culture in rapid clonal propagation, production of pathogen - free plants and "Virus Indexing" |
| Week 9 | 11-09-2023 to 16-09-2023 | Anther and Ovary Culture; |
| Week 10 | 18-09-2023 to 23-09-2023 | Haploid and Triploid plant production & their application. |
| Week 11 | 25-09-2023 to 30-09-2023 | Protoplast and somatic hybridization |
| Week 12 | 03-10-2023 to 07-10-2023 | Isolation, culture and plant regeneration, protoplast fusion, identification and characterization of somatic hybrids. |
| Week 13 | 09-10-2023 to 14-10-2023 | Cybrids applications of protoplast hybridization technology. |
| **Mid Semester Exam (16th October 2023 – 21st October, 2023)** | | |
| Week 15 | 25-10-2023 to 27-10-2023 | Secondary metabolites: Secondary Plant products from cultured cells and their industrial applications. |
| Week 16 | 31-10-2023 to 04-11-2023 | Cryopreservation of germplasm. |
| Week 17 | 06-11-2023 to 11-11-2023 | Short term and long term conservation of plant genetic resources |
| Week 18 | 14-11-2023 to 18-11-2023 | In situ and Ex situ conservation of plants |

**PG.GOVT COLLEGE FOR GIRLS, SECTOR-42, CHANDIGARH**

**Teaching Plan Odd Semester (For UG-Ongoing Classes)**

**Session (2023-2024)**

**Class: B.Sc. BTH 5th Sem Name of the Teacher: Rachana Rana**

**Subject: Env Biotechnology Period : 2nd (1,2,3,5,6), 6th (6)**

**Paper : Room No : 221**

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| **S. No** | **Dates** | **Topics to be covered** |
| Week 1 | 21-07-2023 to 22-07-2023 | Basics of Environment and Environmental pollution, air, water, soil and noise. |
| Week 2 | 24-07-2023 to 28-07-2023 | Air – Types, Sources & Effects, |
| Week 3 | 31-07-2023 to 05-08-2023 | Soil - soil pollutants (fertilizers, insecticides fungicides, pesticides). Noise pollution, its control and impact on human health. |
| Week 4 | 07-08-2023 to 12-08-2023 | Renewable and Non Renewable energy resources. and their Environmental Impacts. |
| Week 5 | 14-08-2023 to 19-08-2023 | Modern Fuels (gasohol, hydrogen and solar energy) and their Environmental Impacts. |
| Week 6 | 21-08-2023 to 26-08-2023 | Water pollution and its management: Measurement of water, pollution, sources of water pollution. |
| Week 7 | 28-08-2023 to 02-09-2023 | General strategies for wastewaters treatment. |
| Week 8 | 04-09-2023 to 09-09-2023 | Microbiology of waste water treatment, |
| Week 9 | 11-09-2023 to 16-09-2023 | aerobic processes, activated sludge, oxidation ponds, trickling filters |
| Week 10 | 18-09-2023 to 23-09-2023 | Anaerobic digesters, upward flow anaerobic sludge blanket reactors. |
| Week 11 | 25-09-2023 to 30-09-2023 | Integrated Pest management |
| Week 12 | 03-10-2023 to 07-10-2023 | Biodegradation of environmental pollutants: pesticides, hydrocarbons, Azo dye. |
| Week 13 | 09-10-2023 to 14-10-2023 | Biofertilizers for clean environment– Nitrogen fixing microorganism, |
| **Mid Semester Exam (16th October 2023 – 21st October, 2023)** | | |
| Week 15 | 25-10-2023 to 27-10-2023 | enrichment of the soil with assimilable nitrogen |
| Week 16 | 31-10-2023 to 04-11-2023 | Introduction to solid waste and municipal solid waste management: Sources, types |
| Week 17 | 06-11-2023 to 11-11-2023 | composition. Land fills, Treatment methods |
| Week 18 | 14-11-2023 to 18-11-2023 | Composting, Vermicomposting) Bioindicators for detection of pollution |

**PG.GOVT COLLEGE FOR GIRLS, SECTOR-42, CHANDIGARH**

**Teaching Plan Odd Semester (For UG-PG - Ongoing Classes)**

**Session (2023-2024)**

**Class:** B.Sc. Biotech (Hons.) 2nd year (3rd Semester)

**Name of the Teacher: Dr. Sunita Kumari**

**Subject:** Animal Cell Culture **Period : 4th (4), 5th(3,5,6),6th(2),7th(2)**

**Room No : 102, 111, 111, 122**

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| **S. No** | **Dates** | **Topics to be covered** |
| Week 1 | 21-07-2023 to 22-07-2023 | History of development of cell cultures |
| Week 2 | 24-07-2023 to 28-07-2023 | the natural surroundings for animal cells, stimulating natural conditions for animal cells metabolic capabilities of animal cells, |
| Week 3 | 31-07-2023 to 05-08-2023 | Biology of cultured cells: The culture environment, cell adhesion, proliferation, differentiation, signaling, evolution of cell lines |
| Week 4 | 07-08-2023 to 12-08-2023 | Equipment and materials for animal cell culture technology |
| Week 5 | 14-08-2023 to 19-08-2023 | Introduction to the balanced salt solutions and simple growth medium. Brief discussion on the  chemical, physical and metabolic functions of different constituents of culture medium |
| Week 6 | 21-08-2023 to 26-08-2023 | Role of carbon dioxide. Role of serum and supplements |
| Week 7 | 28-08-2023 to 02-09-2023 | Serum & protein free defined media and their application |
| Week 8 | 04-09-2023 to 09-09-2023 | Animal cell culture Techniques: Dispersion and disruption of tissues; primary cultures |
| Week 9 | 11-09-2023 to 16-09-2023 | Dispersion and disruption of tissues; primary cultures anchorage and non-anchorage dependent cells |
| Week 10 | 18-09-2023 to 23-09-2023 | secondary culture, transformed animal cells, |
| Week 11 | 25-09-2023 to 30-09-2023 | Established/continuous cell lines, commonly used animal cell lines, their origin and  characteristics |
| Week 12 | 03-10-2023 to 07-10-2023 | Maintenance and growth kinetics of cells in culture |
| Week 13 | 09-10-2023 to 14-10-2023 | differentiation of cells, Measurement of growth and viability of cells in culture |
| **Mid Semester Exam (16th October 2023 – 21st October, 2023)** | | |
| Week 15 | 25-10-2023 to 27-10-2023 | Cytotoxicity assays & their applications |
| Week 16 | 31-10-2023 to 04-11-2023 | Characterization of Cell lines and their authentication, Cell fusion and production of monoclonal antibodies |
| Week 17 | 06-11-2023 to 11-11-2023 | Transformation and immortalization |
| Week 18 | 14-11-2023 to 18-11-2023 | Cryopreservation, Bio-Safety & Bioethics |

**PG.GOVT COLLEGE FOR GIRLS, SECTOR-42, CHANDIGARH**

**Teaching Plan Odd Semester (For UG-PG - Ongoing Classes)**

**Session (2023-2024)**

**Class:** B.Sc. Biotech (Hons.) 2nd year (3rd Semester)

**Name of the Teacher: Dr. Sunita Kumari**

**Subject:** Immunology-I **Period: 3rd(1-4,6),7th (1) Room No : 111, 122**

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| **S. No** | **Dates** | **Topics to be covered** |
| Week 1 | 21-07-2023 to 22-07-2023 | **Introduction**  i) Overviews of immune system – Historical perspectives  ii) Innate and acquired immunity |
| Week 2 | 24-07-2023 to 28-07-2023 | Clonal nature of immune response.  **Cells of the immune system:** Hematopoiesis and differentiation |
| Week 3 | 31-07-2023 to 05-08-2023 | B-lymphocytes, T-lymphocytes, lymphocyte trafficking macrophages, , |
| Week 4 | 07-08-2023 to 12-08-2023 | dendritic cells, Natural killer cells, eosinophils, neutrophils & mast cells |
| Week 5 | 14-08-2023 to 19-08-2023 | **Organs of the immune system:** Primary and secondary lymphoid organs |
| Week 6 | 21-08-2023 to 26-08-2023 | secondary lymphoid organs, Systemic function of immune system |
| Week 7 | 28-08-2023 to 02-09-2023 | **Antigen** – Immunogenicity Vs. antigenicity, factors effecting immunogenicity, nature of immunogen, |
| Week 8 | 04-09-2023 to 09-09-2023 | epitopes, heptans and antigenicity, pattern recognition receptors |
| Week 9 | 11-09-2023 to 16-09-2023 | **B Cell Activation, Differentiation:** B-Cell Activation and Proliferation, In Vivo Sites for Induction of Humoral Responses, T-dependent and T-independent antigens |
| Week 10 | 18-09-2023 to 23-09-2023 | **Immunoglobulins:** Structure of antibody, antibody effector function |
| Week 11 | 25-09-2023 to 30-09-2023 | antibody classes and biological activities, antigenic determinants on Immunoglobulins |
| Week 12 | 03-10-2023 to 07-10-2023 | Immunoglobulins superfamilies. generation of antibody diversity. **Major histocompatibility complex:** General organization and inheritance |
| Week 13 | 09-10-2023 to 14-10-2023 | cellular distribution, regulation of MHC expression and disease susceptibility, antigen presentation, |
| **Mid Semester Exam (16th October 2023 – 21st October, 2023)** | | |
| Week 15 | 25-10-2023 to 27-10-2023 | T-Cell Maturation, Activation, and Differentiation: T-Cell Receptors: Structure and Roles, |
| Week 16 | 31-10-2023 to 04-11-2023 | T- Cell Receptor Complex, Thymic Selection of the T-Cell Repertoire, |
| Week 17 | 06-11-2023 to 11-11-2023 | TH-Cell Activation, T-Cell Differentiation, |
| Week 18 | 14-11-2023 to 18-11-2023 | Cell Death and T-Cell populations, Peripheral-T-Cells |

**PG.GOVT COLLEGE FOR GIRLS, SECTOR-42, CHANDIGARH**

**Teaching Plan Odd Semester (For UG-PG - Ongoing Classes)**

**Session (2023-2024)**

**Class:** B.Sc. Biotech (Elective) 2nd year (3rd Semester)

**Name of the Teacher: Dr. Sunita Kumari**

**Subject: Introduction to Genetic Engineering and Immunotechnology**

**Period : 6th (4-6), Room No : 101**

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| **S. No** | **Dates** | **Topics to be covered** |
| Week 1 | 21-07-2023 to 22-07-2023 | Immunotechnology  Basic Immunology: Types of immunity – innate, acquired, active and passive |
| Week 2 | 24-07-2023 to 28-07-2023 | Immunotechnology  Basic Immunology: Types of immunity – innate, acquired, active and passive |
| Week 3 | 31-07-2023 to 05-08-2023 | Lymphoid organs. |
| Week 4 | 07-08-2023 to 12-08-2023 | Lymphoid organs. |
| Week 5 | 14-08-2023 to 19-08-2023 | Antigen: - Immunogenicity, chemical composition, immunogen dosage |
| Week 6 | 21-08-2023 to 26-08-2023 | Haptens, adjuvants. |
| Week 7 | 28-08-2023 to 02-09-2023 | Antibody structure, function and types |
| Week 8 | 04-09-2023 to 09-09-2023 | Antibody diversity, Ig Domains. |
| Week 9 | 11-09-2023 to 16-09-2023 | Antibody diversity, Ig Domains. |
| Week 10 | 18-09-2023 to 23-09-2023 | Ag-Ab interactions – Cross reactions |
| Week 11 | 25-09-2023 to 30-09-2023 | Precipitation and agglutination. |
| Week 12 | 03-10-2023 to 07-10-2023 | Immunological Techniques: Immunodiffusion, Immunoelectrophoresis |
| Week 13 | 09-10-2023 to 14-10-2023 | Major Histo-compatibility complex (MHC), MHC restriction, regulation |
| **Mid Semester Exam (16th October 2023 – 21st October, 2023)** | | |
| Week 15 | 25-10-2023 to 27-10-2023 | Antigen presentation and processing antigen presenting cells, |
| Week 16 | 31-10-2023 to 04-11-2023 | Antigen presentation and processing antigen presenting cells, |
| Week 17 | 06-11-2023 to 11-11-2023 | Cell mediated subset of T-cells, Cytotoxic helper and suppressor cells. |
| Week 18 | 14-11-2023 to 18-11-2023 | Cell mediated and humoral immunity, antibody dependent cell mediated cytotoxicity, Natural killer cells. |

**PG.GOVT COLLEGE FOR GIRLS, SECTOR-42, CHANDIGARH**

**Teaching Plan Odd Semester (For UG-PG - Ongoing Classes)**

**Session (2023-2024)**

**Class: B.Sc. Biotech. (Hons.) 5th Sem. Name of the Teacher: SUMIT DABHI**

**Subject: Molecular Biology**

**Period : 5th Lecture Mon-Thu, Sat 4th Lecture Fri** **Room No : 101, 122**

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| **S. No** | **Dates** | **Topics to be covered** |
| Week 1 | 21-07-2023 to 22-07-2023 | **UNIT-I**  DNA: Chemical composition of DNA, DNA structure-single stranded DNA, detailed account of double stranded DNA, B-DNA, Z-DNA, D-DNA, A-DNA, E-DNA and their importance. |
| Week 2 | 24-07-2023 to 28-07-2023 | DNA: Chemical composition of DNA, DNA structure-single stranded DNA, detailed account of double stranded DNA, B-DNA, Z-DNA, D-DNA, A-DNA, E-DNA and their importance. |
| Week 3 | 31-07-2023 to 05-08-2023 | Genome organization in prokaryotes: Molecular nature of the genetic material, Composition and structure of prokaryotic DNA and RNA. |
| Week 4 | 07-08-2023 to 12-08-2023 | Genome organization in eukaryotes: Composition and structure of eukaryotic DNA and RNA. Characteristic features of highly repetitive DNA, Tandemly repetitive DNA and Mini and microsatellite DNA and Insertional elements and their role and importance |
| Week 5 | 14-08-2023 to 19-08-2023 | **UNIT-II**  DNA replication: Prokaryotic DNA replication; replication origin and site and structure and DNA Ter regions and structure. DNA polymerases, composition and features, replication factors and the mechanism of replication, leading strand and lagging strand synthesis, procesessivity and fidelity. Replication of single stranded DNA, M13 viral DNA. |
| Week 6 | 21-08-2023 to 26-08-2023 | DNA replication: Prokaryotic DNA replication; replication origin and site and structure and DNA Ter regions and structure. DNA polymerases, composition and features, replication factors and the mechanism of replication, leading strand and lagging strand synthesis, procesessivity and fidelity. Replication of single stranded DNA, M13 viral DNA. |
| Week 7 | 28-08-2023 to 02-09-2023 | Eukaryotic DNA replication; origins, replication initiation complexes and their assembly, licensing factors, DNA polymerases and their composition, telomerase and mode of action, replication factors, disassembly of chromatin components and reassembly during replication. |
| Week 8 | 04-09-2023 to 09-09-2023 | Eukaryotic DNA replication; origins, replication initiation complexes and their assembly, licensing factors, DNA polymerases and their composition, telomerase and mode of action, replication factors, disassembly of chromatin components and reassembly during replication. |
| Week 9 | 11-09-2023 to 16-09-2023 | **UNIT-III**  Gene Expression: Overview of central dogma  RNAs: types, rRNAs; Structural features of rRNAs- prokaryotic and eukaryotic. tRNAs: structural features, their anticodon feature. mRNAs- prokaryotic and eukaryotic mRNAs, structural features, |
| Week 10 | 18-09-2023 to 23-09-2023 | Transcription: regulatory elements and mechanism of transcription regulation in prokaryotes and eukaryotes |
| Week 11 | 25-09-2023 to 30-09-2023 | Transcription: regulatory elements and mechanism of transcription regulation in prokaryotes and eukaryotes |
| Week 12 | 03-10-2023 to 07-10-2023 | **UNIT IV**  Translation: Overview and mechanism of translation process in prokaryotes, characteristics of the genetic code, structure and charging of tRNA |
| Week 13 | 09-10-2023 to 14-10-2023 | Translation: Overview and mechanism of translation process in prokaryotes, characteristics of the genetic code, structure and charging of tRNA |
| **Mid Semester Exam (16th October 2023 – 21st October, 2023)** | | |
| Week 15 | 25-10-2023 to 27-10-2023 | Gene Regulation: Regulation of gene expression in response to environmental conditions. Operon concept- the Lactose and the Tryptophan operon. |
| Week 16 | 31-10-2023 to 04-11-2023 | Gene Regulation: Regulation of gene expression in response to environmental conditions. Operon concept- the Lactose and the Tryptophan operon. |
| Week 17 | 06-11-2023 to 11-11-2023 | Gene Regulation: Regulation of gene expression in response to environmental conditions. Operon concept- the Lactose and the Tryptophan operon. |
| Week 18 | 14-11-2023 to 18-11-2023 | Revision |

**PG.GOVT COLLEGE FOR GIRLS, SECTOR-42, CHANDIGARH**

**Teaching Plan Odd Semester (For UG-PG - Ongoing Classes)**

**Session (2023-2024)**

**Class: B.Sc. Biotech. (Elective) 5th Sem. Name of the Teacher: SUMIT DABHI**

**Subject: Plant & Animal Biotechnology**

**Period: 6th Lecture Mon-Wed, 2nd Lecture Thu-Sat**

**Room No : 107**

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| **S. No** | **Dates** | **Topics to be covered** |
| Week 1 | 21-07-2023 to 22-07-2023 | **UNIT-I**  Introduction to in vitro methods : Micropropagation- embryo culture, endosperm culture, |
| Week 2 | 24-07-2023 to 28-07-2023 | somatic embryogenesis & organogenesis, , somaclonal & gametoclonal variations, haploids & their applications. |
| Week 3 | 31-07-2023 to 05-08-2023 | somatic embryogenesis & organogenesis, , somaclonal & gametoclonal variations, haploids & their applications. |
| Week 4 | 07-08-2023 to 12-08-2023 | Protoplast isolation, methods, testing their viability & regeneration, various methods of fusion: somatic hybridization & their applications. |
| Week 5 | 14-08-2023 to 19-08-2023 | Protoplast isolation, methods, testing their viability & regeneration, various methods of fusion: somatic hybridization & their applications. |
| Week 6 | 21-08-2023 to 26-08-2023 | **UNIT-II**  Direct and indirect transformation of plants. Tumor formation in plant using Agrobacterium tumefaciens. Mechanism of T-DNA transfer to plants |
| Week 7 | 28-08-2023 to 02-09-2023 | Direct and indirect transformation of plants. Tumor formation in plant using Agrobacterium tumefaciens. Mechanism of T-DNA transfer to plants |
| Week 8 | 04-09-2023 to 09-09-2023 | plasmid vectors for plant transformation. Genetic manipulation of plants for virus resistance, pest resistance, herbicide tolerance, resistance to fungi and bacteria. |
| Week 9 | 11-09-2023 to 16-09-2023 | plasmid vectors for plant transformation. Genetic manipulation of plants for virus resistance, pest resistance, herbicide tolerance, resistance to fungi and bacteria. |
| Week 10 | 18-09-2023 to 23-09-2023 | **UNIT-III**  Introduction to animal cell cultures Requirement (laboratory equipment, media etc. primary and secondary culture cell lines) Anchorage dependence and contact inhibition. |
| Week 11 | 25-09-2023 to 30-09-2023 | Contamination & remedial measures Monolayer and suspension cultures. Cryopreservation and germplasm storage. Establishment of gene banks. |
| Week 12 | 03-10-2023 to 07-10-2023 | Contamination & remedial measures Monolayer and suspension cultures. Cryopreservation and germplasm storage. Establishment of gene banks. |
| Week 13 | 09-10-2023 to 14-10-2023 | **UNIT-IV**  Cytodifferentation culturing of differentiation cells and retention of properties Large scale production of animal cell in culture. |
| **Mid Semester Exam (16th October 2023 – 21st October, 2023)** | | |
| Week 15 | 25-10-2023 to 27-10-2023 | Cytodifferentation culturing of differentiation cells and retention of properties Large scale production of animal cell in culture. |
| Week 16 | 31-10-2023 to 04-11-2023 | Transformation of animal cells. Transgenesis, applications of transgenic animal, Biofarming. Stem cells : their applications in biology & medicine cloning : Procedure, applications & problems. |
| Week 17 | 06-11-2023 to 11-11-2023 | Transformation of animal cells. Transgenesis, applications of transgenic animal, Biofarming. Stem cells : their applications in biology & medicine cloning : Procedure, applications & problems. |
| Week 18 | 14-11-2023 to 18-11-2023 | Revision |

**PG.GOVT COLLEGE FOR GIRLS, SECTOR-42, CHANDIGARH**

**Teaching Plan Odd Semester (For UG-PG - Ongoing Classes)**

**Session (2023-2024)**

**Class: B.Sc. Micro. (Elective) 3rd Sem. Name of the Teacher: SUMIT DABHI**

**Subject: Medical Microbiology**

**Period: 6th Lecture Fri-Sat Room No: 216**

|  |  |  |
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| **S. No** | **Dates** | **Topics to be covered** |
| Week 1 | 21-07-2023 to 22-07-2023 | **Section A**  Brief introduction to terminology of infectious diseases, Frequency of disease, Recognition of infectious disease, Infectious disease cycle. |
| Week 2 | 24-07-2023 to 28-07-2023 | **Section A**  Brief introduction to terminology of infectious diseases, Frequency of disease, Recognition of infectious disease, Infectious disease cycle. |
| Week 3 | 31-07-2023 to 05-08-2023 | **Section A**  Brief introduction to terminology of infectious diseases, Frequency of disease, Recognition of infectious disease, Infectious disease cycle. |
| Week 4 | 07-08-2023 to 12-08-2023 | **Section A**  Brief introduction to terminology of infectious diseases, Frequency of disease, Recognition of infectious disease, Infectious disease cycle. |
| Week 5 | 14-08-2023 to 19-08-2023 | **Section B**  Nomenclature and classification of microbes of medical importance, criteria of classification |
| Week 6 | 21-08-2023 to 26-08-2023 | **Section B**  Nomenclature and classification of microbes of medical importance, criteria of classification |
| Week 7 | 28-08-2023 to 02-09-2023 | **Section B**  Nomenclature and classification of microbes of medical importance, criteria of classification |
| Week 8 | 04-09-2023 to 09-09-2023 | **Section C**  Microbial adherence, Active penetration into body, Passive penetration into body, Microbial production of enzymes in the body |
| Week 9 | 11-09-2023 to 16-09-2023 | **Section C**  Microbial adherence, Active penetration into body, Passive penetration into body, Microbial production of enzymes in the body |
| Week 10 | 18-09-2023 to 23-09-2023 | **Section C**  Microbial adherence, Active penetration into body, Passive penetration into body, Microbial production of enzymes in the body |
| Week 11 | 25-09-2023 to 30-09-2023 | **Section C**  Microbial adherence, Active penetration into body, Passive penetration into body, Microbial production of enzymes in the body |
| Week 12 | 03-10-2023 to 07-10-2023 | **Section C**  Microbial adherence, Active penetration into body, Passive penetration into body, Microbial production of enzymes in the body |
| Week 13 | 09-10-2023 to 14-10-2023 | **Section D**  Development of chemotherapy, General characteristics of antimicrobial drugs, Determining level of antimicrobial activity, Mechanism of action of antimicrobial drugs, Factors influencing the effectiveness of antimicrobial drugs. |
| **Mid Semester Exam (16th October 2023 – 21st October, 2023)** | | |
| Week 15 | 25-10-2023 to 27-10-2023 | **Section D**  Development of chemotherapy, General characteristics of antimicrobial drugs, Determining level of antimicrobial activity, Mechanism of action of antimicrobial drugs, Factors influencing the effectiveness of antimicrobial drugs. |
| Week 16 | 31-10-2023 to 04-11-2023 | **Section D**  Development of chemotherapy, General characteristics of antimicrobial drugs, Determining level of antimicrobial activity, Mechanism of action of antimicrobial drugs, Factors influencing the effectiveness of antimicrobial drugs. |
| Week 17 | 06-11-2023 to 11-11-2023 | **Section D**  Development of chemotherapy, General characteristics of antimicrobial drugs, Determining level of antimicrobial activity, Mechanism of action of antimicrobial drugs, Factors influencing the effectiveness of antimicrobial drugs. |
| Week 18 | 14-11-2023 to 18-11-2023 | **Section D**  Development of chemotherapy, General characteristics of antimicrobial drugs, Determining level of antimicrobial activity, Mechanism of action of antimicrobial drugs, Factors influencing the effectiveness of antimicrobial drugs. |

**PG.GOVT COLLEGE FOR GIRLS, SECTOR-42, CHANDIGARH**

**Teaching Plan Odd Semester (For Undergraduate Classes – BTH-3 Year)**

**Session (2023-2024)**

**Class:BSc Biotechnology(Hons)3rd Year Name of the Teacher: Dr Vikas Sharma**

**Subject:bioinformatics Period :7th (1-3) 6th (4-5)**

**Paper : Bioinformatics Room No : Bioinformatics Lab**

|  |  |  |
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| **S. No** | **Dates** | **Topics to be covered** |
| Week 1 | 21-07-2023 to 22-07-2023 | Intro to Bioinformatics, Bioinformatics Databases |
| Week 2 | 24-07-2023 to 28-07-2023 | SCOP, CATH databases |
| Week 3 | 31-07-2023 to 05-08-2023 | Local & global Alignment Algorithms |
| Week 4 | 07-08-2023 to 12-08-2023 | Blast types, Algorithm, Result Interpretation |
| Week 5 | 14-08-2023 to 19-08-2023 | Multiple Sequence Alignment |
| Week 6 | 21-08-2023 to 26-08-2023 | Genome Annotation |
| Week 7 | 28-08-2023 to 02-09-2023 | Phylogenetic Analysis, tree topologies |
| Week 8 | 04-09-2023 to 09-09-2023 | Rasmol |
| Week 9 | 11-09-2023 to 16-09-2023 | Dot Plot |
| Week 10 | 18-09-2023 to 23-09-2023 | Swissprot/TrEMBL |
| Week 11 | 25-09-2023 to 30-09-2023 | PDB |
| Week 12 | 03-10-2023 to 07-10-2023 | PAM & BLOSUM |
| Week 13 | 09-10-2023 to 14-10-2023 | Methods of Gene Identification |
| **Mid Semester Exam (16th October 2023 – 21st October, 2023)** | | |
| Week 15 | 25-10-2023 to 27-10-2023 | Blast types, Algorithm, Result Interpretation |
| Week 16 | 31-10-2023 to 04-11-2023 | Phylogenetic Analysis, tree topologies |
| Week 17 | 06-11-2023 to 11-11-2023 | Revision |
| Week 18 | 14-11-2023 to 18-11-2023 | Revision |

**PG.GOVT COLLEGE FOR GIRLS, SECTOR-42, CHANDIGARH**

**Teaching Plan Odd Semester (For Undergraduate Classes - First Year)**

**Session (2023-2024)**

**Class: BSc Bioinfo(E)1st Year**  **Name of the Teacher: Dr Vikas Sharma**

**Subject: Intro to bioinformatics Period :4th (4-6)**

**Paper : A & B Room No : Bioinformatics Lab**

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| **S. No** | **Dates** | **Topics to be covered** |
| Week 1 | 21-07-2023 to 22-07-2023 | FASTA, Entrez, PubMed, Medline, ASN.1 |
| Week 2 | 24-07-2023 to 28-07-2023 | Notion of Homology, Enzymology, Cell organelles |
| Week 3 | 31-07-2023 to 05-08-2023 | Functional Divisions of Sequence Databases |
| Week 4 | 07-08-2023 to 12-08-2023 | Nucleotide Sequence databases, Flat File Format |
| Week 5 | 14-08-2023 to 19-08-2023 | Genpept, Swissprot, Uniprot, Goligi bodies |
| Week 6 | 21-08-2023 to 26-08-2023 | NCBI Resource, Structure, Function of Biomolecules |
| Week 7 | 28-08-2023 to 02-09-2023 | Nucleotide Sequence databases, Flat File Format |
| Week 8 | 04-09-2023 to 09-09-2023 | Nucleotide Sequence databases, Flat File Format |
| Week 9 | 11-09-2023 to 16-09-2023 | NCBI Bookshelf, Basic Cell Biology |
| Week 10 | 18-09-2023 to 23-09-2023 | Genpept, Swissprot, Uniprot |
| Week 11 | 25-09-2023 to 30-09-2023 | Double Helix, Closed Circular DNA |
| Week 12 | 03-10-2023 to 07-10-2023 | NCBI Bookshelf |
| Week 13 | 09-10-2023 to 14-10-2023 | Double Helix, Closed Circular DNA |
| **Mid Semester Exam (16th October 2023 – 21st October, 2023)** | | |  | Revision |
| Week 15 | 25-10-2023 to 27-10-2023 | Double Helix, Closed Circular DNA |
| Week 16 | 31-10-2023 to 04-11-2023 | Double Helix, Closed Circular DNA |
| Week 17 | 06-11-2023 to 11-11-2023 | NCBI Bookshelf |
| Week 18 | 14-11-2023 to 18-11-2023 | Revision |

**PG.GOVT COLLEGE FOR GIRLS, SECTOR-42, CHANDIGARH**

**Teaching Plan Odd Semester (For BIF-2 - Ongoing Classes)**

**Session (2023-2024)**

**Class: BSc Bioinfo(E)2nd Year**  **Name of the Teacher: Dr Vikas Sharma**

**Subject: Sequence Analysis Period :6th (2,3,6)**

**Paper : A & B Room No : Bioinformatics Lab**

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| **S. No** | **Dates** | **Topics to be covered** |
| Week 1 | 21-07-2023 to 22-07-2023 | *Prokaryotic Gene Expression , Operon* |
| Week 2 | 24-07-2023 to 28-07-2023 | Transcription |
| Week 3 | 31-07-2023 to 05-08-2023 | Transcription |
| Week 4 | 07-08-2023 to 12-08-2023 | Transcription |
| Week 5 | 14-08-2023 to 19-08-2023 | Significance of Alignments : E value, Scores |
| Week 6 | 21-08-2023 to 26-08-2023 | Clustal W |
| Week 7 | 28-08-2023 to 02-09-2023 | Principles of Taxonomic Identification |
| Week 8 | 04-09-2023 to 09-09-2023 | Distance & Parsimony Methods |
| Week 9 | 11-09-2023 to 16-09-2023 | Boot Strapping, |
| Week 10 | 18-09-2023 to 23-09-2023 | Clustal X |
| Week 11 | 25-09-2023 to 30-09-2023 | Clustal X |
| Week 12 | 03-10-2023 to 07-10-2023 | Phylip |
| Week 13 | 09-10-2023 to 14-10-2023 | Phylip |
| **Mid Semester Exam (16th October 2023 – 21st October, 2023)** | | |
| Week 15 | 25-10-2023 to 27-10-2023 | Sum of pairs Measures |  | Sum Of pairs Measures |
| Week 16 | 31-10-2023 to 04-11-2023 | DNA Replication |
| Week 17 | 06-11-2023 to 11-11-2023 | Tree of Life |
| Week 18 | 14-11-2023 to 18-11-2023 | Scoring Functions |

**PG.GOVT COLLEGE FOR GIRLS, SECTOR-42, CHANDIGARH**

**Teaching Plan Odd Semester (For Undergraduate Classes - Third Year)**

**Session (2023-2024)**

**Class:BSc Bioinfo(E)3rd Year**  **Name of the Teacher: Dr Vikas Sharma**

**Subject:Intro to Genomics Period :2nd (4-6)**

**Paper : A & B Room No : Bioinformatics Lab**

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| **S. No** | **Dates** | **Topics to be covered** |
| Week 1 | 21-07-2023 to 22-07-2023 | NGS |
| Week 2 | 24-07-2023 to 28-07-2023 | *Shotgun Sequencing, Hierarchical* |
| Week 3 | 31-07-2023 to 05-08-2023 | Expression Vectors |
| Week 4 | 07-08-2023 to 12-08-2023 | Expression Vectors |
| Week 5 | 14-08-2023 to 19-08-2023 | Expression Vectors |
| Week 6 | 21-08-2023 to 26-08-2023 | Expression Vectors |
| Week 7 | 28-08-2023 to 02-09-2023 | Base Calling |
| Week 8 | 04-09-2023 to 09-09-2023 | Manual & automated Sequencing methods |
| Week 9 | 11-09-2023 to 16-09-2023 | Sequencing Accuracy |
| Week 10 | 18-09-2023 to 23-09-2023 | Coding , Non-coding regions |
| Week 11 | 25-09-2023 to 30-09-2023 | Sequencing Methods |
| Week 12 | 03-10-2023 to 07-10-2023 | Creation of c-DNA libraries |
| Week 13 | 09-10-2023 to 14-10-2023 | *Shotgun Sequencing, Hierarchical* |
| **Mid Semester Exam (16th October 2023 – 21st October, 2023)** | | |
| Week 15 | 25-10-2023 to 27-10-2023 | Sequencing Methods |
| Week 16 | 31-10-2023 to 04-11-2023 | *Shotgun Sequencing, Hierarchical* |
| Week 17 | 06-11-2023 to 11-11-2023 | Creation of c-DNA libraries |
| Week 18 | 14-11-2023 to 18-11-2023 | Revision |

**PG.GOVT COLLEGE FOR GIRLS, SECTOR-42, CHANDIGARH**

**Teaching Plan Odd Semester (For Undergraduate Classes - First Year)**

**Session (2023-2024)**

**Class: B.Sc. BTH-I Yr (1st sem)**  **Name of the Teacher: Ms Sonia Chauhan**

**Subject: Intro to Biotechnology Period: 2nd (Tues, Thurs)**

**Paper: I Room No: 111**

|  |  |  |
| --- | --- | --- |
| **S. No** | **Dates** | **Topics to be covered** |
| Week 1 | 21-07-2023 to 22-07-2023 | Unit-I: Advent, scope and basics of biotechnology |
| Week 2 | 24-07-2023 to 28-07-2023 | Bacteria as workhorses of Biotechnology; *E. coli* as the model bacterium |
| Week 3 | 31-07-2023 to 05-08-2023 | *Saccharomyces cerevisiae* and *Neurospora* in Biotechnology |
| Week 4 | 07-08-2023 to 12-08-2023 | Introduction to multicellular organisms as research models: *Drosophila melanogaster,* |
| Week 5 | 14-08-2023 to 19-08-2023 | *Caenorhabditis elegans, Danio rerio* |
| Week 6 | 21-08-2023 to 26-08-2023 | *Mus musculus* |
| Week 7 | 28-08-2023 to 02-09-2023 | *Arabidopsis thaliana* as model for plant genetics |
| Week 8 | 04-09-2023 to 09-09-2023 | Role of viruses and bacteriophages in Biotechnology……. |
| Week 9 | 11-09-2023 to 16-09-2023 | …CONTD.. |
| Week 10 | 18-09-2023 to 23-09-2023 | UNIT-II: Biomolecules in a cell (DNA, RNA and proteins)……. |
| Week 11 | 25-09-2023 to 30-09-2023 | …..CONTD |
| Week 12 | 03-10-2023 to 07-10-2023 | Fundamentals of recombinant DNA technology: Restriction Enzymes, |
| Week 13 | 09-10-2023 to 14-10-2023 | Type II Restriction endonucleases, |
| **Mid Semester Exam (16th October 2023 – 21st October, 2023)** | | |
| Week 15 | 25-10-2023 to 27-10-2023 | Vectors based on *E.coli* plasmids and their properties: pBR322 |
| Week 16 | 31-10-2023 to 04-11-2023 | pBR327, |
| Week 17 | 06-11-2023 to 11-11-2023 | pUC8 |
| Week 18 | 14-11-2023 to 18-11-2023 | REVISION |

**PG.GOVT COLLEGE FOR GIRLS, SECTOR-42, CHANDIGARH**

**Teaching Plan Odd Semester (For Undergraduate Classes - First Year)**

**Session (2023-2024)**

**Class: B.Sc. BTH-I Yr (1st sem)**  **Name of the Teacher: Ms Sonia Chauhan**

**Subject: Life Sciences Period: 3rd ( Mon, Wed), 2nd (Fri, Sat)**

**Paper : I Room No : 122**

|  |  |  |
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| **S. No** | **Dates** | **Topics to be covered** |
| Week 1 | 21-07-2023 to 22-07-2023 | UNIT-I An introduction to life on earth |
| Week 2 | 24-07-2023 to 28-07-2023 | Plant Anatomy and Physiology:- Structure of land plants: Vascular system of dicot and monocot plants |
| Week 3 | 31-07-2023 to 05-08-2023 | Plant Anatomy and Physiology:- Nutrition and Transport phenomena in plants. |
| Week 4 | 07-08-2023 to 12-08-2023 | Plant Anatomy and Physiology: An Introduction to Plant reproduction. |
| Week 5 | 14-08-2023 to 19-08-2023 | Plant Anatomy and Physiology: Plant responses to the environment (Short day and Long day Plants) |
| Week 6 | 21-08-2023 to 26-08-2023 | UNIT-III Animal Anatomy and Physiology:- Homeostasis and organization of animal body |
| Week 7 | 28-08-2023 to 02-09-2023 | Animal Anatomy and Physiology:- Circulation: Human Circulatory system, Mechanism of Circulation, Cardiac cycle |
| Week 8 | 04-09-2023 to 09-09-2023 | Respiration: Organs of respiration, mechanism of breathing, Exchange of gases |
| Week 9 | 11-09-2023 to 16-09-2023 | Nutrition and digestion: Mechanism of digestion of proteins and carbohydrates. |
| Week 10 | 18-09-2023 to 23-09-2023 | The immune response in Animals: B Cells and T Cells |
| Week 11 | 25-09-2023 to 30-09-2023 | UNIT-IV Animal Anatomy and Physiology:- The endocrine system: Define glands, Pitutary, Pancreas, Thyroid and Parathyroid |
| Week 12 | 03-10-2023 to 07-10-2023 | Action and support by the muscles and skeleton system. |
| Week 13 | 09-10-2023 to 14-10-2023 | Action and support by the muscles and skeleton system |
| **Mid Semester Exam (16th October 2023 – 21st October, 2023)** | | |
| Week 15 | 25-10-2023 to 27-10-2023 | UNIT-II Ecology:- Community interactions. |
| Week 16 | 31-10-2023 to 04-11-2023 | Ecosystems:- Definition and components. Food chain and food web. |
| Week 17 | 06-11-2023 to 11-11-2023 | Habitat. Ecological succession. |
| Week 18 | 14-11-2023 to 18-11-2023 | Types of succession. |

**PG.GOVT COLLEGE FOR GIRLS, SECTOR-42, CHANDIGARH**

**Teaching Plan Odd Semester (For Undergraduate Classes - First Year)**

**Session (2023-2024)**

**Class: B.Sc. BTE-I Yr (1st sem)**  **Name of the Teacher: Ms Sonia Chauhan**

**Subject: Intro to Biotechnology Period : 4th ( Thurs, Sat)**

**Paper : I Room No : 101**

|  |  |  |
| --- | --- | --- |
| **S. No** | **Dates** | **Topics to be covered** |
| Week 1 | 21-07-2023 to 22-07-2023 | UNIT-III INTRODUCTION OF Biotechnology |
| Week 2 | 24-07-2023 to 28-07-2023 | Centrifugation: Theory, Types of centrifugation |
| Week 3 | 31-07-2023 to 05-08-2023 | and their application to biological systems. |
| Week 4 | 07-08-2023 to 12-08-2023 | Microscopy: Principle, & working of various microscopes (bright field) |
| Week 5 | 14-08-2023 to 19-08-2023 | Microscopy: Principle, & working of various microscopes (phase contrast) |
| Week 6 | 21-08-2023 to 26-08-2023 | Microscopy: Principle, & working of various microscopes ( fluorescent) |
| Week 7 | 28-08-2023 to 02-09-2023 | Chromatography: Principles, TLC |
| Week 8 | 04-09-2023 to 09-09-2023 | Chromatography: Principles-Gel permeation, |
| Week 9 | 11-09-2023 to 16-09-2023 | Chromatography: Principles- Ion exchange. |
| Week 10 | 18-09-2023 to 23-09-2023 | Electrophoresis: Principle, types and applications. |
| Week 11 | 25-09-2023 to 30-09-2023 | Electrophoresis: Principle, types and applications. |
| Week 12 | 03-10-2023 to 07-10-2023 | Electrophoresis: Principle, types and applications. |
| Week 13 | 09-10-2023 to 14-10-2023 | UNIT-IV Genetically modified organisms (GMOs) - Definition, types, Applications and Ethical issues, Transgenic plants and Animals: benefits and drawbacks |
| **Mid Semester Exam (16th October 2023 – 21st October, 2023)** | | |
| Week 15 | 25-10-2023 to 27-10-2023 | Public concerns and risks associated with genetic engineering: Bioterrorism and biowarfare |
| Week 16 | 31-10-2023 to 04-11-2023 | Human Cloning and Stem cell research: concept, applications and ethical issues |
| Week 17 | 06-11-2023 to 11-11-2023 | IPR and biotechnology: Concept of Patent, Trademarks and copyrights, |
| Week 18 | 14-11-2023 to 18-11-2023 | IPR and biotechnology: Patenting life forms, Importance of patents in Biotechnology. |

**PG.GOVT COLLEGE FOR GIRLS, SECTOR-42, CHANDIGARH**

**Teaching Plan Odd Semester (For UG-PG - Ongoing Classes)**

**Session (2023-2024)**

**Class: B.Sc. BTH-II yr (3rd sem)**  **Name of the Teacher: Ms Sonia Chauhan**

**Subject: Genetics Period : 4th (Mon-wed), 7th (Thurs), 1st (Sat)**

**Paper: A Room No : 102, 122**

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| **S. No** | **Dates** | **Topics to be covered** |
| Week 1 | 21-07-2023 to 22-07-2023 | Unit – I Mendelian laws of inheritance |
| Week 2 | 24-07-2023 to 28-07-2023 | Gene interactions, |
| Week 3 | 31-07-2023 to 05-08-2023 | Sex determination in drosophila, plants and animals, |
| Week 4 | 07-08-2023 to 12-08-2023 | Sex linked inheritance, |
| Week 5 | 14-08-2023 to 19-08-2023 | Non-disjunction as a proof of chromosomal theory of inheritance |
| Week 6 | 21-08-2023 to 26-08-2023 | Extra chromosomal inheritance: mitochondrial and chloroplast genetic systems. |
| Week 7 | 28-08-2023 to 02-09-2023 | Unit – II Crossing over: molecular mechanism and cytological proof, |
| Week 8 | 04-09-2023 to 09-09-2023 | Recombination, linkage, gene mapping |
| Week 9 | 11-09-2023 to 16-09-2023 | Three point testcross, interference, coincidence, recombination frequencies, |
| Week 10 | 18-09-2023 to 23-09-2023 | Tetrad analysis, somatic cell hybridization for gene linkage studies, Hereditary defects. |
| Week 11 | 25-09-2023 to 30-09-2023 | Unit – III Mutation: Spontaneous versus induced mutations, types of mutations, mutagenic agents: Physical, chemical and radiation, molecular basis of mutations |
| Week 12 | 03-10-2023 to 07-10-2023 | mechanisms of DNA repair, mutations frequency, correlation between mutagenicity and carcinogenicity |
| Week 13 | 09-10-2023 to 14-10-2023 | Numerical chromosome aberrations: polyploidy, aneuploidy, Chromosomal aberrations: Deletion, duplications, inversions, translocations, position effects. |
| **Mid Semester Exam (16th October 2023 – 21st October, 2023)** | | |
| Week 15 | 25-10-2023 to 27-10-2023 | Unit – IV Basic microbial genetics: Conjugation, transduction, transformation, |
| Week 16 | 31-10-2023 to 04-11-2023 | isolation of auxotrophs, replica plating techniques, , analysis of mutations in biochemical pathway, one gene – one enzyme hypothesis. |
| Week 17 | 06-11-2023 to 11-11-2023 | Population genetics: Hardy-Weinberg equilibrium, gene and genotypic frequencies, |
| Week 18 | 14-11-2023 to 18-11-2023 | Chi- square test, probability, pedigree analysis. |

**PG.GOVT COLLEGE FOR GIRLS, SECTOR-42, CHANDIGARH**

**Teaching Plan Odd Semester (For UG-PG - Ongoing Classes)**

**Session (2023-2024)**

**Class: B.Sc. MIB-III yr (5th sem)**  **Name of the Teacher: Ms Sonia Chauhan**

**Subject: Food & Industrial Micro. Period : 6th (Tue-wed)**

**Paper: B Room No : 128**

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| **S. No** | **Dates** | **Topics to be covered** |
| Week 1 | 21-07-2023 to 22-07-2023 | Section A Food as substrate for microorganisms, |
| Week 2 | 24-07-2023 to 28-07-2023 | Nutritive value of food stuffs, |
| Week 3 | 31-07-2023 to 05-08-2023 | Effect of Hydrogen ion concentration (pH), moisture requirement on food, |
| Week 4 | 07-08-2023 to 12-08-2023 | Important food borne diseases viz. Staphylococcal intoxication, Botulism |
| Week 5 | 14-08-2023 to 19-08-2023 | Important food borne diseases viz. Salmonellosis, Shigellosis. |
| Week 6 | 21-08-2023 to 26-08-2023 | Section B Contamination, preservation and spoilage in various foods viz. cereal and cereal products (cereal grains, flour, bread, pasta, macroni),…… |
| Week 7 | 28-08-2023 to 02-09-2023 | Contd.. |
| Week 8 | 04-09-2023 to 09-09-2023 | Contamination, preservation and spoilage in various foods : Sugar and sugar products (Maple, Syrup, Honey, Candy). |
| Week 9 | 11-09-2023 to 16-09-2023 | …..contd.. |
| Week 10 | 18-09-2023 to 23-09-2023 | Section C Production strains, |
| Week 11 | 25-09-2023 to 30-09-2023 | Isolation and screening techniques |
| Week 12 | 03-10-2023 to 07-10-2023 | preservation and genetic modification of Industrial microorganisms. |
| Week 13 | 09-10-2023 to 14-10-2023 | REVISION |
| **Mid Semester Exam (16th October 2023 – 21st October, 2023)** | | |
| Week 15 | 25-10-2023 to 27-10-2023 | Section D Yeast (Baker’s) and its uses, |
| Week 16 | 31-10-2023 to 04-11-2023 | Fermentation of Beer, |
| Week 17 | 06-11-2023 to 11-11-2023 | Fermentation of Wine and Alcohol. |
| Week 18 | 14-11-2023 to 18-11-2023 | Fermentation of Alcohol |