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

**Teaching Plan Session Odd Semester**

**(2018-19)**

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

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

**Subject: :** Animal Cell Culture **Period : Ist(3), IIIrd(4,6), IVth(1)**

**Room No : 122 111 111**

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| **S. No** | **Date From** | | **Date Upto** | **Topics to be covered** |
| Week 1 | **(For ongoing classes)** | | | History of development of cell cultures, the natural surroundings for animal cells, |
| July 24, 2018 | | July 28, 2018 |
| Week 2 | July 30, 2018 | August 4, 2018 | | stimulating natural conditions for animal cells metabolic capabilities of animal cells, |
| Week 3 | August 6, 2018 | August 11, 2018 | | Biology of cultured cells : The culture environment, cell adhesion, proliferation, differentiation, signaling, evolution of cell lines, Equipments and materials for animal cell culture technology |
| Week 4 | August 13, 2018 | August 18, 2018 | | 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 5 | August 20, 2018 | August 25, 2018 | | Role of carbon dioxide. Role of serum and supplements. Serum & protein free defined media and their application |
| Week 6 | August 27, 2018 | September 1, 2018 | | Animal cell culture Techniques: Dispersion and disruption of tissues; primary cultures,  anchorage and non-anchorage dependent cells |
| Week 7 | September 3, 2018 | September 8, 2018 | | secondary culture, transformed animal cells, |
| Week 8 | September 10, 2018 | September 15, 2018 | | Established/continuous cell lines, commonly used animal cell lines, their origin and  characteristics |
| Week 9 | September 17, 2018 | September 22, 2018 | | Maintenance and growth kinetics of cells in culture, differentiation of cells, |
| Week 10 | September 24, 2018 | September 29, 2018 | | Measurement of growth and viability of cells in culture. |
| Week 11 | October 1, 2018 | October 8, 2018 | | Cytotoxicity assays & their applications |
| **MID SEMESTER EXAMINATION (October 11, 2018 to October 17, 2018)** | | | | |
| Week 12 | October 20, 2018 | October 27, 2018 | | Characterization of Cell lines and their authentication |
| Week 13 | October 29, 2018 | November 3, 2018 | | Cell fusion and production of monoclonal antibodies. |
| Week 14 | November 5, 2018 | November 10, 2018 | | Transformation and immortalization |
| Week 15 | November 12, 2018 | November 17, 2018 | | cryopreservation. |
| Week 16 | November 19, 2018 | November 22, 2018 | | Bio-Safety |
| Week 17 | November 26, 2018 | December 1, 2018 | | Bioethics |

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**Teaching Plan Session Odd Semester**

**(2018-19)**

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

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

**Subject:** Immunology-I

**Period: Vth(2-5)**

**Room No :** 110

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| **S. No** | **Date From** | | **Date Upto** | **Topics to be covered** |
| Week 1 | **(For ongoing classes)** | | | **Introduction**  i) Overviews of immune system – Historical perspectives  ii) Innate and acquired immunity |
| July 24, 2018 | | July 28, 2018 |
| Week 2 | July 30, 2018 | August 4, 2018 | | Clonal nature of immune response.  **Cells of the immune system :** Hematopoiesis and differentiation |
| Week 3 | August 6, 2018 | August 11, 2018 | | Lymphocyte trafficking, B-lymphocytes, T-lymphocytes, macrophages, dendritic cells, Natural killer cells and lymphocyte activated killer cells, eosinophils, neutrophils & mast cells |
| Week 4 | August 13, 2018 | August 18, 2018 | | **Organs of the immune system :** Primary and secondary lymphoid organs, |
| Week 5 | August 20, 2018 | August 25, 2018 | | Systemic function of immune system  **Lymphocyte Trafficking**: Cell surface proteins, Cell Adhesion molecules ( Integrin,  Selectin, Cadherin family and Ig Superfamily). |
| Week 6 | August 27, 2018 | September 1, 2018 | | **Antigen** – Immunogenicity Vs. antigenicity, factors effecting immunogeneticity, nature  of immunogen, |
| Week 7 | September 3, 2018 | September 8, 2018 | | epitopes, heptans and antigenicity, pattern recognition receptors |
| Week 8 | September 10, 2018 | September 15, 2018 | | **Immunoglobulins:** Structure of antibody, antibody effector function, antibody classes  and biological activities, antigenic determinants on Immunoglobulins, |
| Week 9 | September 17, 2018 | September 22, 2018 | | Immunoglobulins superfamilies.  **Major histocompatibility complex:** General organization and inheritance |
| Week 10 | September 24, 2018 | September 29, 2018 | | cellular distribution, regulation of MHC expression and disease susceptibility |
| Week 11 | October 1, 2018 | October 8, 2018 | | antigen presentation, |
| **MID SEMESTER EXAMINATION (October 11, 2018 to October 17, 2018)** | | | | |
| Week 12 | October 20, 2018 | October 27, 2018 | | Production of Monoclonal Antibodies, applications of  polyclonal and monoclonal antibodies |
| Week 13 | October 29, 2018 | November 3, 2018 | | Strength of interaction, cross reactivity, antibody  affinity, avidity |
| Week 14 | November 5, 2018 | November 10, 2018 | | Antigen-antibody interactions as tools for research and diagnosis:  precipitation and agglutination reactions |
| Week 15 | November 12, 2018 | November 17, 2018 | | immunodiffusion, immunoelectrophoresis |
| Week 16 | November 19, 2018 | November 22, 2018 | | immunoassays, Enzyme linked immunosorbent assay (ELISA),Radioimmunoassay (RIA), |
| Week 17 | November 26, 2018 | December 1, 2018 | | western blot, Immunofluorescence |