

Lesson Plan (2018)

Miss Rakhee Chauhan

**B.Sc. (Hons) Zoology SEMESTER – III, CELL BIOLOGY**

**July ,2018**

**An Overview of Cells**

Overview of prokaryotic and eukaryotic cells, cell size and shape, Phages, Virioids, Mycoplasma and *Escherichia coli*

**August ,2018**

**Tools and techniques of Cell Biology**

**Microscopic** -Principles of Light microscopy; Phase contrast microscopy; Confocal microscopy; Electron microscopy (EM)- scanning EM and scanning transmission EM (STEM); Fluorescence microscopy.

**September ,2018**

**Tools and techniques of Cell Biology**

**Analytical** -Flow cytometry- fluochromes, fluorescent probe and working principle; Spectrophotometry; Mass spectrometry; X-ray diffraction analysis.

**Separation** -Sub-cellular fractionation- differential and density gradient centrifugation; Chromatography- paper, thinlayer, gel-filtration, ion-exchange, affinity and High-Performance Liquid Chromatography (HPLC).

**October, 2018**

**Composition of Cells**

Molecules of cell, cell membranes and cell Proteins.

**The Nucleus**

Nuclear Envelope- structure of nuclear pore complex, nuclear lamina, Transport across Nuclear Envelope, Chromatin: molecular organization, Nucleolus and rRNA Processing.

**Protein Sorting and Transport**

The Endoplasmic reticulum, The Golgi Apparatus, Mechanism of Vesicular Transport, Lysosomes.

**November, 2018**

**Mitochondria, Chloroplasts and Peroxisomes**

Structural organization, Function, Marker enzymes, Mitochondrial biogenesis, Protein import in mitochondria,

Semiautonomous nature of mitochondria and chloroplast, chloroplast DNA, Peroxisomes' assembly

**Cytoskelton and Cell Movement**

Structure and organization of actin filaments; actin, myosin and cell movement; intermediate filaments; microtubules.