

## Outline of Topics for Mid Year Exam:

### Intro to Biology

- 7 properties of life
- Levels of Organization
- Scientific Method
- Evolution

### Chemical Basis of Life

- Properties of Water and Carbon
- Organic Molecules/Compounds
- Functional Groups
- Carbohydrates, Lipids, Proteins, Nucleic Acids

### Cells

- Cell Theory
- Eukaryotic vs. Prokaryotic
- Cell Membrane and its Components
- Organelles
- Osmosis and Diffusion
- Passive and Active Transport

### Cellular Respiration

- Equation
- Energy
- Stages and Products of Cellular Respiration
- Fermentation
  - Alcohol vs. Lactic Acid

### Photosynthesis

- Equation
- Autotrophs vs. Heterotrophs
- Chloroplasts (Parts and Function)
- Redox Reactions
- Visible Spectrum and Pigments
- Stages of Photosynthesis

### Mitosis and Meiosis

- Types of Cell Division
- Stages of the Cell Cycle
- Stages of Mitosis
- Stages of Meiosis
- Diploid, Haploid, Gametes, Somatic Cells
- Chromosomes, Crossing Over, Non-Disjunction, Karyotypes
- Mitosis vs. Meiosis

## Genetics

- Mendel and his Research (P Generation, F1 and F2 Generations)
- Punnett Squares
- Law of Segregation and Independent Assortment
- All Terms relating to Genetics
- Types of Crosses
  - Monohybrid, Dihybrid, Test Cross, Incomplete Dominance, Codominance, Sex Linked Traits