

Syllabus Of Medical Biology. First year students

A- Molecular Cell biology

- 1- Introduction to cell biology, Types of cell, cell theories.**
- 2- Living status of the cell, living properties of the protoplasm, and General structure of a cell.**
- 3- Chemistry of the cell (inorganic & organic molecules).**
- 4- The organic materials of the cell
Proteins, Lipid, Carbohydrates, and Nucleic acids.**
- 5- Molecular organization of plasma membrane & functions.**
- 6- Modification of the plasma membrane.**
- 7- Molecules crossing the plasma membrane.**
- 8- Structure and functions of cytoplasmic organelles (ribosome, endoplasmic reticulum, Golgi complex, mitochondria, lysosome, peroxisomes, centrioles, cilia and flagella).**
- 9- Cytoplasm (cytoskeleton, cytosol and cytoplasmic inclusions).**
- 10- Structure and functions of the nucleus (nucleolus, nuclear membrane, chromatin and nucleoplasm).**
- 11- Cell cycle and cell division.**
- 12- Gametogenesis**
- 13- Cellular energy.**
- 14- Cellular activity**
- 15- Cellular differentiation.**
- 16- Cellular specialization.**
- 17- Cellular aging.**

B- Molecular genetics

- 1- Genetic terminology.**
- 2- Mendel's 1st law and 2nd law.**
- 3- Mode of Mendelian inheritance.**
- 4- Deviation from Mendelian laws.**
- 5- Linkage and sex-linked inheritance**

- 6- Molecular basis of crossing over**
- 7- Human chromosomes**
- 8- Numerical aberrations**
- 9- Structural aberrations**
- 10- DNA structure and replication**
- 11- RNA structure and translocation**
- 12- Protein synthesis and gene regulation**
- 13- Mutation and its molecular basis**
- 14- Genetic control of metabolism and Gene expression**
- 15- Genetic engineering and biotechnology**
- 16- Recombinant DNA technology**
- 17- Gene cloning**
- 18- Medical application of genetic engineering**

C- Basic histology

- 1- Introduction**
- 2- Epithelial tissue**
- 3- Classification of epithelial tissue**
- 4- Glandular epithelium**
- 5- Cell junctions**

6- Connective tissue

7- Classification of connective tissue

8- Blood tissue

9- Cartilage

10- Bone tissue

11- Development and growth of bone

12- Muscle tissue

13- Regeneration of muscle tissue

14- Nervous tissue

15- Synapses