MARWADI UNIVERSITY  
B.Pharm  
SEMESTER: I  
Subject Name: REMEDIAL BIOLOGY  
Subject Code: 13BI0101

Scope: To learn and understand the components of living world, structure and functional system of plant and animal kingdom

Objectives: Upon completion of the course, the student shall be able to
1. know the classification and salient features of five kingdoms of life
2. understand the basic components of anatomy & physiology of plant
3. know understand the basic components of anatomy & physiology animal with special reference to human

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<tr>
<th>Sr No</th>
<th>Course Contents</th>
<th>Total Hrs</th>
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</table>
| 1     | **Living world:**  
Definition and characters of living organisms  
Diversity in the living world  
Binomial nomenclature  
Five kingdoms of life and basis of classification. Salient features of Monera, Potista, Fungi, Animalia and Plantae, Virus,  
**Morphology of Flowering plants**  
Morphology of different parts of flowering plants – Root, stem, inflorescence, flower, leaf, fruit, seed.  
General Anatomy of Root, stem, leaf of monocotyledons & Dicotylidones | 7 |
| 2     | **Body fluids and circulation**  
Composition of blood, blood groups, coagulation of blood  
Composition and functions of lymph  
Human circulatory system  
Structure of human heart and blood vessels  
Cardiac cycle, cardiac output and ECG  
**Digestion and Absorption**  
Human alimentary canal and digestive glands  
Role of digestive enzymes  
Digestion, absorption and assimilation of digested food  
**Breathing and respiration**  
Human respiratory system  
Mechanism of breathing and its regulation  
Exchange of gases, transport of gases and regulation of respiration  
Respiratory volumes | 7 |
| 3     | **Excretory products and their elimination**  
Modes of excretion  
Human excretory system- structure and function  
Urine formation  
Rennin angiotensin system  
**Neural control and coordination**  
Definition and classification of nervous system  
Structure of a neuron  
Generation and conduction of nerve impulse  
Structure of brain and spinal cord  
Functions of cerebrum, cerebellum, hypothalamus and medulla oblongata  
**Chemical coordination and regulation**  
Endocrine glands and their secretions  
Functions of hormones secreted by endocrine glands  
**Human reproduction**  
Parts of female reproductive system | 7 |
### Parts of male reproductive system

- Spermatogenesis and Oogenesis
- Menstrual cycle

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<th>4</th>
<th><strong>Plants and mineral nutrition:</strong></th>
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<td>Essential mineral, macro and micronutrients</td>
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<td>Nitrogen metabolism, Nitrogen cycle, biological nitrogen fixation</td>
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<td>Photosynthesis</td>
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<td>Autotrophic nutrition, photosynthesis, Photosynthetic pigments, Factors affecting photosynthesis.</td>
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<th><strong>Plant respiration:</strong></th>
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<tr>
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<td>Respiration, glycolysis, fermentation (anaerobic).</td>
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<td>Phases and rate of plant growth, Condition of growth, Introduction to plant growth regulators</td>
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<td>Cell - The unit of life</td>
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<td>Structure and functions of cell and cell organelles, Cell division</td>
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<td>Tissues</td>
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<td>Definition, types of tissues, location and functions.</td>
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### Text Books

- b. A Text book of Biology by Dr. Thulajappa and Dr. Seetaram.
- c. A Text book of Biology by B.V. Sreenivasa Naidu
- d. A Text book of Biology by Naidu and Murthy
- e. Botany for Degree students By A.C.Dutta.
- g. A manual for pharmaceutical biology practical by S.B. Gokhale and C. K. Kokate

### Practical

1. Introduction to experiments in biology a) Study of Microscope
2. Section cutting techniques c) Mounting and staining
3. Permanent slide preparation
4. Study of cell and its inclusions
5. Study of Stem, Root, Leaf, seed, fruit, flower and their modifications
6. Detailed study of frog by using computer models
7. Microscopic study and identification of tissues pertinent to Stem, Root, Leaf, seed, fruit and flower
8. Identification of bones
9. Determination of blood group
10. Determination of blood pressure
11. Determination of tidal volume

### Reference Books