

Foundational Human Biology, Bio-Chemistry and Biotech (Bridge Course)

Contact Classes [Module: 6 Hours]

(a) Define Science and Biology, Define Human biology, Identify Cell Structures and their Functions, Basic anatomical terminology. [1 Hour]

(b) Identify the organs of the Digestive System, Respiratory system, Urinary system, Nervous system, Endocrine system, Reproductive system, Cardiovascular system. [1 Hour]

© Introduction, classification, chemical nature and biological role of carbohydrate, lipids, nucleic acids, amino acids and proteins. [1 Hour]

(d) Introduction, properties, nomenclature and IUB classification of enzymes. Therapeutic and diagnostic applications of enzymes. [1 Hour]

(e) Brief introduction to Biotechnology. Immunity and its classification. [1 Hour]

(f) Define Vaccine, classify it with example. Conceptual knowledge about Penicillin, Vitamin, Blood products. [1 Hour]

Spot Assessment & Remedial

Reference Books:

1. Principles of Anatomy and Physiology by Tortora Grabowski. Palmetto, GA, U.S.A.
2. Human Physiology (vol 1 and 2) by Dr. C.C. Chatterrje, Academic Publishers Kolkata
3. Essentials of Medical Physiology by K. Sembulingam and P. Sembulingam. Jaypee Brothers medical publishers, New Delhi.
4. Textbook of Biochemistry by Rama Rao.
5. Harper's Biochemistry by Robert K. Murry, Daryl K. Granner and Victor W. Rodwell.
6. B.R. Glick and J.J. Pasternak: Molecular Biotechnology: Principles and Applications of Recombinant DNA: ASM Press Washington D.C.
7. Simplified Concepts of Biotechnology (Kindle Edition), by Dr. PRAMOD KADU (Author), SUCHITA VISHWAKARMA (Author).

Self-Placed Learning [Min. 20 hours Module]

Through Massive Open Online Courses (MOOCs): **[20 Hours]**

□ **Online Resources**

1. <https://www.youtube.com/watch?v=t5DvF5OVr1Y> (Structure and Functions of the Cell, Cell Biology | Cell Structure & Function, 1 Hour).
2. <https://www.youtube.com/watch?v=URUJD5NEXC8> (Biology: Cell Structure I Nucleus Medical Media, 10 Mins).
3. <https://www.youtube.com/watch?v=yGDDOTAg4Ls> (Anatomy & Physiology, Basic Anatomical Terminology | Anatomical Position of Body | Medical Terms, 30 Mins).
4. https://www.youtube.com/watch?v=e_1utfWwdD4 (Human Body system, 30 Mins)
5. <https://www.youtube.com/watch?v=TLcphY19ZuI> (Biological Molecules : Carbohydrate, 30 Mins)
6. <https://www.youtube.com/watch?v=Ei0v28Yeux0> (Lipids, 30 Mins)
7. <https://www.youtube.com/watch?v=7SyO1fVMYRM> (Proteins, 30 Mins)
8. <https://www.youtube.com/playlist?list=PLTF9h-T1TcJhy6Og8piwo8doDJavTFOvg> (Metabolism, Role of Biological Molecules in details, 12 Hours)
9. <https://www.youtube.com/watch?v=omV6Y-mlNqE> (Enzymes, 1.30 Hours)
10. <https://www.youtube.com/watch?v=D9Jlc5ESqFE> (An Introduction to Biotechnology, 1 Hour)
11. <https://www.youtube.com/watch?v=k9QAYp3bYmc> (Immunity and Human Immune system, 30 Mins).
12. <https://www.youtube.com/watch?v=aPQSry1-yoU> (Vaccines, 1 Hour)
13. <https://www.youtube.com/watch?v=dtCvYfhzPQ0> (Vitamins, 30 Mins)
14. <https://www.youtube.com/watch?v=JRI7iJqFGiw> (Penicillin, 30 Mins)

- COMMON Academic Orientation and Doubt Clearing Session **[4 hours]**