



BASICS OF BIOLOGY

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IIT Guwahati

TYPE OF COURSE : New | Core | UG

COURSE DURATION : 12 Weeks (24 Jan' 22 - 15 Apr' 22)

EXAM DATE : April 23, 2022

INTENDED AUDIENCE : Any interested learners

INDUSTRIES APPLICABLE TO : Basic course for 1st Yr BTech students

COURSE OUTLINE :

In the current MOOCs course I have put effort to discuss different aspects of biology for engineer graduate students. The course will discuss in detail about human physiology and that will help the student to understand the working principles of different process as well as mechanism of different types of diseases. It will help student to understand the general biology as well as they may be able to integrate their engineer skills to take-up and solve challenging questions related to daily life. By the end of this course, student will be able to understand:

1. Basics of biology and different types of organisms in universe.
2. Understanding different types of cells and their structure and functions.
3. Molecular Cell biology and mechanism of different cellular processes.
4. Human physiology and disease biology.

ABOUT INSTRUCTOR :

Prof. Trivedi did his Ph.D. from Central Drug Research Institute, Lucknow in the field of Structural Biology. From his postdoctoral research at the Department of Molecular and Cellular Biology, Harvard University and Molecular Oncology Research Institute, Tufts University, Boston, USA, he gained extensive research experience in the field of cell biology, intracellular signal transduction, and immunology. Currently, his laboratory at Department of Biosciences and Bioengineering has an active group working and exploring questions related to malaria parasite biochemistry, the role of novel proteins, development of anti-malarial agents, and lastly understanding factors playing a crucial role in immunomodulation and host pathology in different organs.

COURSE PLAN :

Week 1: Introduction to Biology

Week 2: Origin of Life and Evolution

Week 3: Cells in biology

Week 4: Molecules of the Life Part(1)

Week 5: Molecules of the Life (Part 2)

Week 6: Basics of Cellular Processes (Part 1)

Week 7: Basics of Cellular Processes (Part 2)

Week 8: Human Physiology (Part 1)

Week 9: Human Physiology (Part 2)

Week 10: Human Physiology (Part 3)

Week 11: Cellular Homeostasis

Week 12: Summary and Conclusions