COURSE TITLE : MATHEMATICS FOR BIOLOGISTS
CREDITS : 02
COURSE No : LS 102N
Course Coordinator : Prof. Sneha Sudha Komath, SLS

This is an introductory course in mathematics that is expected to serve as a bridge course for those who may have not studied the subject after high school. It seeks to revise some familiar basic concepts from high school and introduce some new concepts of mathematics that are frequently used in the life sciences.

S. No.	Topics	Lectures (28)
1.	Numbers and measurements in the Life Sciences- concentration, volume, amount; accuracy versus precision; significant values; rounding off; Powers; Roots; Real numbers; Absolute values.	1
2.	The natural logarithm versus the common logarithm; The exponential function; Where and how are these functions used in scientific analysis.	1
3.	Some other common functions that are used in biology and their graphs; Dependent and independent variables and their relevance for biochemical analysis.	2
4.	Trigonometric functions and identities. Representation of vectors in 2D and 3D geometry; Coordinate geometry; Transformation of coordinates and their relevance.	4
5.	Imaginary and complex numbers; how they differ from real numbers; their applications in scientific analysis.	2
6.	The slope of functions and its relevance; The slope as a differential equation; Differential calculus and its many application in biology (Growth rate analysis; peak/ trough assignment in spectroscopy).	5
7.	Integration and its applications in biology (Area/ Volume; Total change).	4
8.	Solving two and three simultaneous equations; an introduction to matrices.	5
9.	Probability and its applications; the most probable state/ event.	4

Suggested Readings:

1. Introduction to Mathematics for Life Scientists by E. Batschelet (Springer).
2. For a more elementary introduction to some of these topics, students may also refer to CBSE NCERT textbooks of Mathematics for class XI and XII.