LS102A	**Mathematics For Biologists**	**2 Credits**
Name of the Faculty Member: Prof. Sneha Sudha Komath* / Dr Amit K Mishra* (SES)		
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**	**Faculty Name/ Contact Hours (Total 28 h)**
1.	The number line (Rational, Irrational and Real numbers); Scientific notation; Orders of magnitude	1
2.	The natural logarithm versus the common logarithm; The exponential function; where and how are these functions used in scientific analysis. Some properties of logarithmic and exponential functions	2
3.	Other common functions used in biology and their graphs; Dependent and independent variables and their relevance for biochemical analysis.	2
4.	Trigonometric functions and identities	2
5.	Imaginary and complex numbers and their representation in the Argand plane; algebra of complex numbers; their applications in scientific analysis.	2
6.	The slope of functions and its relevance; Introducing calculus through geometry	3
7.	Differential calculus from first principles: Limits and continuity;	3
8.	First and second differentials; their applications in biology (Growth rate analysis; peak/ trough assignment in spectroscopy; curvature).	3
9.	Indefinite and definite integrals; applications of integration (Area/ Volume; Total change).	4
10.	Solving two and three simultaneous equations, an introduction to matrices and determinants	6

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.