

CALCULUS II FOR BIO-TECHNOLOGY – Course Information

Adapted by Janet Harris for Semester 1, 2012/13

1. **Credits:**4 (Class hours: 60 periods)
2. **Pre-Requisite:** Calculus I
3. **Assessment:** Homeworks & class tests: 20%
Midterm Exam: 20%
Final Exam: 60%
4. **Key Textbook:** R.N. Greenwell, N.P. Ritchey, & M.L. Lial, *Calculus with Applications for the Life Sciences*, Addison Wesley, Boston, 2003.
Other textbooks: Stewart, Rogawski, Jordan & Smith.

Chapter	Content
1	Multivariable calculus 1.1 Functions of several variables 1.2 Partial derivatives 1.3 Maxima and minima 1.4 Total differentials and approximations 1.5 Double integrals
2	Matrix analysis 2.1 Solution of Linear Systems 2.2 Addition and Subtraction of Matrices 2.3 Multiplication of Matrices 2.4 Matrix Inverses 2.5 Eigenvalues and Eigenvectors
3	Differential equations 3.1 Solutions of Elementary and Separable Differential Equations 3.2 Linear First-Order Differential Equations 3.3 Euler's Method 3.4 Linear Systems of Differential Equations 3.5 Nonlinear Systems of Differential Equations 3.6 Applications of Differential Equations
4	Probability 4.1 Basic concepts 4.2 Conditional probability 4.3 Independent events 4.4 Bayes' Theorem 4.5 Discrete random variables and their distributions 4.6 Expected value, variance 4.7 Special distributions: Binomial distribution, Poisson distribution 4.8 Special continuous distributions: normal distribution, uniform distribution 4.9 Area under the normal curve