DEPARTMENT OF MATHEMATICS
SYLLABUS

Course # & Name: Mat 17C "Calculus for Biology and Medicine"

Recommended Text(s) & Price: Neuhauser's "Calculus for Biology and Medicine" 2nd Edition ($67.00 - $133.00)

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Lecture(s)	Sections	Comments/Topics
1	Web	Laplace transform / Theory
2	Web	Fourier transform / Applications, examples
3	11.1	Linear systems of ODEs / Theory
4	11.1	Linear systems of ODEs / Theory and examples
5	11.2	Linear systems of ODEs / Examples
6	11.3	Nonlinear systems of ODEs / Theory
7	11.4	Nonlinear systems of ODEs / Examples
8	11.4	Nonlinear systems of ODEs / More examples
9	12.1 + Web	Combinatorial mathematics / Introduction; partitions and counting
10	Web	Combinatorial mathematics / Applications of combinatronics in biology
11	12.2	Basic probability definitions and examples
12	12.3	Conditional probability and independence
13	12.3 + Web	Bayesian formula and Bayesian analysis in biology
14	12.4	Discrete random variables and distributions
15	12.4	Discrete randon variables and distributions / more examples
16	12.5	Continuous random variables and distributions
17	12.5	Continuous random

		variables and distributions / More examples
18	12.7	Elements of statistics
19	12.7	Elements of statistics / More examples
20	Web	Monte Carlo simulations / Use computer, Matlab
21	Web	Mathematical algorithms / Theory
22	Web	Mathematical algorithms / Genomic applications
23	Web	Game Theory / Theory
24	Web	Applications to animal behavior and evolution
25	Web	Intro to graph theory / Qualitative graphs (trees, networks, flowcharts, digraphs)
26	Web	
27	Web	Project with use of computers to be directed in discussion sections

Additional Notes:

This course covers Chapters 11 – 12: systems of equations, their application in biology; elements of Probability and Statistics, their applications in biology; Discrete mathematics, its applications in biology (web based material: elements of combinatronics, algorithms, game theory, graph theory); Laplace transform, Monte Carlo simulations.