

Computer Modeling of Biological Systems

MW 12:20-1:15, W 1:15-3:15 Dana181

Outline of Topics & Readings

	<u>Topic</u>	<u>Keen</u>
I. Basic Tools For Modeling		
Sept.	4 Introductory , course orientation	--
	4 Lab/full Self-teaching introduction to modeling	H**
	09 Lab/short Work period for model set #1	H**
	11 Lec- Analytical & Differential Models Compared	1
	11 Lab/ full Work period for model set#2	1
	16 No classes	--
	18 Lec- Equilibrium & Steady State Models	2
	18 Lab/ full Work period for model set#3 (and #2)	2
	20 Model set #2 due – Friday by 3:30 p.m.	1
	23 Lab – short (model set #3)	2
	25 Fitting Model Equations, Methods of Numerical Solution	3,5
	25 Lab – full (model set #4)	3,5
	30 Lab – short (model set #4)	3,5
Oct.	02 A 1rst try at modeling a specific area- Cell metabolic biochemistry	6
	02 Lab – full (model set #5)	6
	07 Lab – short (model set #5)	6
II. Modeling In Specific Biological Subareas		
	09 Dynamics of Homogeneous Populations	7
	09 Lab - full	7
	14 Lab - short	7
	16 Advanced population models	7
	16 Lab - full	7
	21 Lab - short	7
	23 Age Class Models & Life Table Simulations	9
	23 Lab - full	9
	28 Lab - short	9
	30 Ecosystems & Energy Flow- Biogeochemical Compartment Models	13
	30 Lab - full	13
Nov.	04 Lab - short	13
	06 Compartment Models in Physiology I- Diffusion Models	14
	06 Lab - full	14
	11 Lab - short	14
	20 Physiological Models II- Systems Physiology	15
	20 Lab - full	15
	25 Lab - short	15
	27 Thanksgiving break (27-01)	--

		<u>Topic</u>	<u>Keen</u>
Dec.	2	Control Systems (genetic, cellular, physiologic) (Note Mon. lecture)	17
	4	Lab -full (control systems)	17
III Some Advanced Techniques and Special Area Modeling - alternate topics			
	9	Microbial Growth &/or Monte Carlo Stochastic Techniques	8,18,H**
	11	Lab - full	8,18,H**
or			
	9	Epidemiology, Advanced Modeling Techniques&	24
	11	Lab - full	24
	18	Final project presentation period (Wed. 12/18 1:30-4:30)	Dana 181
	20	Final Projects Due today, Friday (by 4:30 p.m.)	—

*	Parts of each, pages TBA	<u>Course Meeting Times & Places</u>		
**	Handout for reading or assignment	Lecture	Wednesday 12:20-1:15	Dana 181
&	cell & molec. credit- see intro	Lab-full	Wednesday 1:15-3:15	Dana 181
		Lab-short	Monday 12:20-1:15	Dana 181

Locatons w/ course software
 Dana 181 20
 Public PC's All (according to Matt Hasselbacher-CITS)

The basic course cycle (see intro handout)

