Math 31S   **Fall 2011**

Tentative Schedule of Lectures and Examinations

Date			Topic
W	Aug.	31	A conservation principle: One-compartment dilution
F	Sep.	2	Recovering a function from its rate of change
M	Sep.	5	What is a differential equation?
W	Sep.	7	Review of integration: **The Fundamental Theorem of Calculus**
F	Sep.	9	The natural logarithm function
M	Sep.	12	The natural logarithm function (continued)
W	Sep.	14	The exponential function
F	Sep.	16	The exponential function (continued)
M	Sep.	19	Solving first order differential equations
W	Sep.	21	Separation of variables
F	Sep.	23	Linear first order differential equations
M	Sep.	26	Linear first order differential equations with constant coefficients
W	Sep.	28	Applications of first order differential equations
F	Sep.	30	Qualitative analysis of a first order equation.
M	Oct.	3	Qualitative analysis (continued)
W	Oct.	5	Models of population growth
F	Oct.	7	Models of population growth (continued)
M	Oct.	10	Review
W	Oct.	12	**Exam 1**
F	Oct.	14	The logistic model of population growth
M	Oct.	17	**Fall recess: No Classes**
W	Oct.	19	The logistic model (continued)
F	Oct.	21	Solving the logistic model: Partial fractions
M	Oct.	24	Partial fractions (continued)
W	Oct.	26	Linearization
F	Oct.	28	Integration by parts
M	Oct.	31	Integration by parts (continued)
W	Nov.	2	Principle of linearized stability
F	Nov.	4	Systems of differential equations

Date			Topic
M	Nov.	7	Solving systems of differential equations
W	Nov.	9	Phase-plane analysis: nullclines, equilibrium points and stability
F	Nov.	11	Phase-plane analysis (continued)
M	Nov.	14	Population models of two interacting species
W	Nov.	16	Predator-Prey models: The Lotka-Volterra equations
F	Nov.	18	
M	Nov.	21	Predator-prey models continued
W	Nov.	23	Competition and cooperation
F	Nov.	25	**Thanksgiving recess**
M	Nov.	28	The principle of competitive exclusion.
W	Nov.	30	Review
F	Dec.	2	**Exam 2**
M	Dec.	5	Review
W	Dec.	7	Review
F	Dec.	16	**Final Examination**