Proposed Syllabus for Math 2700

This syllabus is based on the text *Differential Equations* by Blanchard, Devaney, and Hall.

Week	Topic
1.	Modeling: exponential growth and the logistic equation. Examples of solutions and initial value problems.
2-3.	Separation of variables, mixing problems (2 days). Slope fields, RC circuits (2-3 days). Euler's method.
4.	Existence and uniqueness. Exam I (up to Euler's method).
5.	Equilibria and phase line, bifurcations.
6-7.	Linear equations, change of variables, introduction to systems. Intro to harmonic oscillators.
8.	Direction fields, equilibria. Exam II.
9.	Euler's Method. Existence and uniqueness.
10-11.	Linear systems (2 x 2): linearity, decoupled systems, straight line solutions, real eigenvalues.
12.	Complex eigenvalues, repeated and zero eigenvalues.
13.	Harmonic oscillators, the T-D plane. Exam III.
14-15.	Intro to equilibrium analysis of nonlinear systems.