Exam Date/Time: Monday, November 9, 8:15 to 9:30 pm
Format: 100 points in 12 questions (7 x multiple-choice, and 5 x partial-credit / short-answer)
Location: 105 Forum (sections 1, 16, 18); 111 Forum (sections 2, 3, 4, 13); 100 Thomas (sections 5, 6, 9, 10, 12, 14, 19); 108 Forum (sections 7, 11, 17); 102 Forum (sections 8, 15)
A penalty of five (5) points will assessed to your exam score if you take the exam in a room other than the one you are assigned to.

A table of Laplace transforms (a copy of table 6.2.1 from the textbook) will be provided during the exam.

Topics to study
1. Definition (by an integral) and properties of the Laplace transform.
2. Solving initial value problems using the Laplace transform method.
3. Step functions, writing a piecewise continuous function in terms of step functions; Laplace transforms of step and piecewise continuous functions.
4. Differential equations with piecewise continuous and/or impulsive forcing functions.
5. Writing an n-th order linear equation into an n x n system.
6. The Eigenvalues/vectors method of solving 2 x 2 systems of homogeneous linear equations
7. Phase portrait: type and stability of a critical point.
8. Nonlinear system: finding critical points, type and stability of its critical points

Note: The predator-prey equations are not covered on this exam.

Comments: Students should understand the Laplace transform method of solving linear equations; how translations work with the Laplace transform, and to transform piecewise continuous functions; solving systems of linear equations using Eigenvalues and Eigenvectors; the type and stability classifications of critical points (know the 6 types and 3 stabilities); and how to linearize a nonlinear system about one of its critical points.