The exam is scheduled for Monday 9 November. There are 8 problems. Bring a calculator. You may bring a one page formula sheet.

Check my web site
http://www.math.uakron.edu/~kreider
for preparation materials.

The topics covered on the exam are:

- Reduction of Order, section 4.2
- Homogeneous Constant Coefficient Equations, section 4.3
- Undetermined Coefficients, section 4.4
- Variation of Parameters, section 4.6
- Cauchy-Euler Equations, section 4.7
- Spring-Mass Systems, section 5.1
- Linear Systems of Homogeneous Equations, section 8.2

Formulas you need to know are:

- reduction of order formula for $u(x)$
- 3 cases for complementary solutions for constant coefficient equations
- undetermined coefficient forms
- variation of parameter formulas
- 3 cases for complementary solutions for Cauchy-Euler equations
- solution form for systems with distinct eigenvalues
- solution form for systems with a repeated eigenvalue

For spring-mass systems, you should know

- how to classify the solution to an undriven system as overdamped, underdamped or critically damped by looking at the structure of $x_1(t)$ and $x_2(t)$
- how to recognize the transient and steady state components for a driven system with damping
- how to recognize whether an undamped driven system displays resonance from the ODE or the structure of the solution
- how to set up and solve a typical problem