The final exam will cover all material in the course. In addition to the material in the previous two study guides, here are some study ideas.

- Know the difference between underdamped, overdamped, and critically damped mass-spring systems.
- What do the graphs of solutions of mass-spring systems look like?
- Give an example of frictionless mass spring system (with forcing term) that experiences resonance.
- Look over Lab 2, and the online solutions. What is the meaning of the curve $R(\beta)$?
- When does practical resonance occur in a mass-spring system with friction?
- What are beats? Give an example of a mass-spring system (with forcing term) that will exhibits solutions with beats.
- What is the Laplace transform of a function $f(t)$?
- Can you compute (without using a table) the Laplace transform of e^{5t}? How about $u_3(t)e^{5t}$?
- What is the shift rule? What is the switching rule?
- How do you solve a linear second order differential equation using Laplace transforms?
- Be able to solve a linear second order differential equation with a discontinuous right-hand side or a right-hand side involving Dirac delta functions.