

3450:335 Ordinary Differential Equations, Kreider
Final Exam Preparation

The exam is scheduled for Tuesday 11 December in room **CAS 107**, from 7:45 to 9:45am. We are sharing the room with a Calculus I section, so make sure you get the right exam! There is no need for a calculator, but bring a formula sheet – no formulas will be provided except for the Laplace Transform handout.

There are 10 questions, each 15 points, on the exam. There are 4 problems from Chapter 2, 3 from Chapter 4, 2 from Chapter 7, and 1 from Chapter 8. All of the problems focus on techniques; there are no modeling problems. Some problems may specify a technique, and some may say use the method of your choice. I will discuss the course grading mechanism in class. Restrict your studies to the following topics. Focus on previous exams and the preparation materials on my web site.

1. Chapter 2 First Order Equations

- (a) separable eqns
- (b) exact eqns
- (c) homogeneous eqns
- (d) linear eqns (integrating factor)
- (e) Bernoulli eqns

2. Chapters 4, 7, 8 Second Order Equations and Systems

- (a) Constant coefficient, $ay'' + by' + cy = f(x)$ – be prepared for undetermined coefficients, variation of parameters and Laplace transforms with or without a delayed source
- (b) Cauchy Euler, $ax^2y'' + bxy' + cy = 0$
- (c) 2×2 systems – be prepared for both the eigenvalue approach and the Laplace transform approach