

Homework to Exam III

Weeks 9-12

In this section of the course, we will look at models that produce second order DEs and linear systems. We will use the material from the previous section to solve and analyze these. The remaining time in this section is devoted to a classical technique for solving ODEs known as the method of Laplace Transforms.

1. Week of March 28-April 1

- Models from Section 3.3: 6, 7, 9, 11, 15, 16

When the text asks you to use a numerical solver, use Maple. Template worksheets are online on our course website.

Additional Problem: Modify the “predator-prey” model if the rabbit population (in the absence of foxes) follows a *logistic* growth rather than exponential growth. Find the new equilibrium solutions and comment on how the new assumption changes the anticipated solution.

- Models from Section 5.1: 1, 3, 11, 25, 27, 31, 32, 39-41
- Models from Section 5.1, continued.

2. Week of April 4-April 8

- Section 7.1: 4, 6, 9, 10, 25, 25, 29, 31-35, 41, 46
- Whitman Undergrad Conference. No classes.
- Section 7.2: 3, 4, 8, 9, 11, 15, 17, 21, 24, 25, 31-39 odd

3. Week of April 11-April 14

- Section 7.3: 3, 7, 9, 15, 23, 27, 37-47 odd, 49-54 (graphs)
- (a) Section 7.3: 55, 57, 63, 65, 82
- (b) Section 7.4: 3, 5, 7, 9, 13, 31, 33, 35, 36, 50, 52
(If covered: 19, 23, 27, 29)
- Section 7.5: 3, 5, 11, 15

4. Week of April 18-April 21

- If we're not behind: Section 7.6: 3, 5, 7, 9, 11
- Review for the exam.
- **Exam III**