

Coverage of Final Exam in Math 331 December 19, 2016

Review the following sections in the course textbook *Advanced Engineering Mathematics*, tenth edition, by Erwin Kreyszig as well all the material covered in class on these topics.

Chapter 1. First-Order ODEs

Solving initial value problems for linear ODEs via definite integrals (see #2 in quiz 1 and #2 in midterm exam).

Chapter 2. Second-Order Linear ODEs

Section 2.2 on homogeneous linear ODEs with constant coefficients and fundamental sets of solutions

Section 2.7 on nonhomogeneous ODEs and the method of undetermined coefficients

Chapter 6. Laplace Transforms

Section 6.1 on the definition of the Laplace transform, Theorem 1 on linearity of the Laplace transform, Table 6.1 containing 12 functions and their Laplace transforms, and First Shifting Theorem 2.

Section 6.2 on Laplace transforms of derivatives in Theorem 1, partial fractions, and solving initial value problems

Section 6.5 on the definition of the convolution, the Convolution Theorem 1, and connection with Green's functions

Also review quizzes 3–6 and the relevant homework problems related to the topics mentioned in this document. There are no proofs on the exam.