

MATH 3430 FALL 2019 FINAL EXAM TOPICS

1. LIST OF TOPICS TO REVIEW

- (1) Classifying ODE based on order and linearity, and as homogenous/inhomogenous, Sections 1.1, 2.1.
- (2) Existence and uniqueness, Section 1.2 (Do not have to memorize the theorem, just know how to work with it as before.)
- (3) Separable equations, Section 1.3
- (4) Integrating factor, Section 1.4
- (5) Bernoulli Equations, Section 1.5
- (6) Exact equations, Section 1.5
- (7) Definition of a Linear Operator, Section 2.1: $L(af + bg) =$, but no proofs on showing an operator is linear or nonlinear.
- (8) Linear Independence: Wronskian, Theorem 3, Section 2.2
- (9) Knowing and understanding the statement of Theorem 2 and Theorem 4 in Section 2.2;
- (10) Second order, homogenous equations with constant coefficients, Section 2.3
- (11) The method of the undetermined coefficients, Section 2.5
- (12) Laplace Transform, Sections 3.1-3.5 (the Laplace Transform formulas will be provided as before).

1.1. You can expect the following question on the Final Exam.

- A question on solving a linear homogeneous system, Section 7.3

2. LIST OF TOPICS THAT WILL NOT BE ON THE FINAL

- (1) No stability/equilibrium question
- (2) No direction field question
- (3) No substitution questions regarding homogenous equations, Section 1.5.
- (4) No proofs as in HW 6, but know the definition when an operator is linear.
- (5) No variation of parameters
- (6) No converting a system of ODE to a single ODE and vice versa, Section 7.1, 7.2 & Section 2.1.

GOOD LUCK!