

MATH 2610 - STUDY GUIDE FOR TEST 2

VANDERBILT UNIVERSITY

- (1) The following formulas, and only these formulas, will be provided in the test:

$$\begin{bmatrix} a & b \\ c & d \end{bmatrix}^{-1} = \frac{1}{ad - bc} \begin{bmatrix} d & -b \\ -c & a \end{bmatrix}.$$

$$x_p(t) = X(t) \int (X(t))^{-1} f(t) dt,$$

Note that it is not said for which kind of equation or in which context each formula applies. You need to recognize them from class and the homework.

- (2) There will be no complicated algebra or complicated integral to be performed in the test. In particular, almost no computation will be required to find eigenvalues or eigenvectors of matrices (e.g., you might be given what the eigenvectors are). But you still need to know how to use eigenvalues, eigenvectors, and generalized eigenvectors to find solutions. Note that the formula for solutions involving generalized eigenvectors will not be given in the test.
- (3) You will not be told which method you need to use for a given differential equation.
- (4) You will not be asked to prove any theorem, but you might be asked to derive some formulas derived in class.
- (5) Make sure you understand the definition and properties of the Wronskian.
- (6) Make sure you understand the definition and properties of the matrix exponential.