

Be Able To:

- ❖ Solve a Differential Equation using Method of Integrating Factors
- ❖ Solve a Differential Equation using Separation of Variables
- ❖ Classify a Differential Equation: linear or nonlinear, its order, if it is autonomous or nonautonomous, homogeneous or nonhomogenous, etc.
- ❖ Be able to Calculate the Wronskian of two functions and interpret the result.
- ❖ Solve a Differential Equation using Method of Undetermined Coefficients
- ❖ Solve a Differential Equation using the Variation of Parameters Equation
- ❖ Transform a nth order differential equation into a system of first order equations
- ❖ Given a matrix, find its eigenvalues and eigenvectors
- ❖ Given a linear system, classify its critical point
- ❖ Given a nonlinear system, linearise around the critical points and then classify them

About the Test:

- It will be on gradescope
- You will have the full class time
- You may use your textbook, notes, a calculator, the class website, and your homework for this test. No internet/website resources allowed besides the class website.
- You will need to have your webcam on for proctoring
- Illegible answers will not receive credit.
- Answers without work and justification will not receive credit
- Only work written on the exam sheet will be graded. If you use a scratch sheet, make sure your complete answer is copied onto the exam sheet.
- On problems with multiple parts, clearly separate your work and mark each part.
- Remember that you are showing me what you know! Focus on showing your thought process and be explicit in your methods.
- You will copy the honor code on the first page of your test and sign it.