

Norwalk Community College
Learning Outcomes for MAT 285 – Differential Equations

After completing Differential Equations, the student should be able to:

- Differentiate between linear and non-linear, ordinary and partial and different degree differential equations
- Sketch the graph of a differential equation and its direction fields
- Identify and solve exact separable and homogeneous differential equations
- Solve second-degree homogeneous linear equations with constant coefficients
- Solve second-degree non-homogeneous linear differential equations by the principle of superposition, undetermined coefficients, and the method of variation of parameters
- Use the Wronskian and characteristic equations to solve differential equations
- Find solutions to second, third and fourth degree differential equations by numerical methods (Euler and Runge-Kutta)
- Find solutions by applying Laplace transform methods
- Demonstrate their understanding of differential equations and their applications to scientific and engineering applications problems
- Solve ordinary differential equations problems relating to dynamical systems and stability theory
- Choose the appropriate techniques from Calculus and Analytical Geometry to generate and explain exact and qualitative solutions of differential equations