



MONROE COUNTY  
COMMUNITY COLLEGE

# Course Outcome Summary

**Standard Course**

## **Math 273 Introduction to Differential Equations**

### **Course Information**

<b>Division</b>	Science-Mathematics
<b>Contact Hours</b>	45
<b>Total Credits</b>	3

**Prerequisites** A grade of C or better in Math 172 Calculus II, within the last three years is highly recommended.

### **Course Description**

Topics include: First-order equations: solution methods, existence, uniqueness, and numerical techniques, Second order equations: constant coefficients, reduction of order, Laplace transform, series, variation of parameters, Systems of equations: eigenvectors and eigenvalues, fundamental matrix solutions, equilibrium points, qualitative behavior, phase plane diagrams, applications of differential equations to scientific, engineering and economic problems. Students will be expected to work with mathematics numerically, graphically, analytically, and verbally.

### **Course Outcomes**

In order to evidence success in this course, students will be able to:

1. Solve separable, exact, first-order differential equations and find integrating factors when possible.
2. Solve constant coefficient, variable coefficient, and non-homogeneous second-order differential equations.
3. Be able to solve appropriate differential equations using Laplace transform methods.
4. Be able to solve appropriate differential equations using power series methods.
5. Be able to make and interpret phase plane diagrams for differential equations and systems of differential equations (both linear and nonlinear).
6. Be able to solve appropriate systems of differential equations using eigenvalue and eigenvector methods.
7. Be able to linearize nonlinear autonomous and nonlinear systems of equations.

Last Updated: February 1, 2023



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