



Course Description:

MATH-078 - Differential Equations Units: 3

This course is a study of ordinary differential equations and their applications to problems in engineering and science. Methods are developed for solving equations of order one, linear equations of arbitrary order, and linear systems. Students are introduced to series methods, Laplace transforms and numerical methods. Use of mathematical software (e.g., MATLAB, Maple) will also be introduced. Note: Some UC campuses combine differential equations with linear algebra and give transfer credit for Math 078 only when it is transferred together with Math 079. Some CSU campuses offer differential equations as an upper division course and give content credit only for Math 078.

Lecture Hours: 3 Lab Hours: None Repeatable: No Grading: L

Prerequisite: MATH 072 OR 071B, WITH C OR BETTER

Recommended: MATH 073

CAN: MATH 24

Advisory Level: Read: 2 Write: 2 Math: 7

Transfer Status: CSU/UC Degree Applicable: AA/AS

CSU GE: B4 District GE: B4 IGETC: 2A

Learning Outcomes:

1. Apply effective methods for the solutions of ordinary differential equations. Students will solve those equations using various algebraic, numerical, series and transform methods depending on the differential equation and initial conditions encountered.
2. Set up and solve physical problems arising from linear models, especially simple circuit problems involving any combination of resistors, inductors and capacitors and spring problems.
3. Model situations in science which lead to ordinary differential equations and be able to formulate appropriate differential equations from accepted scientific principles.
4. Use a computer algebra system to solve ordinary differential equations and systems.