COLLIN COLLEGE

COURSE SYLLABUS

Course Information

Course Number: MATH 2320

Course Title: Differential Equations

Course Description: Ordinary differential equations, including linear equations, systems of equations, equations with variable coefficients, existence and uniqueness of solutions, series solutions, singular points, transform methods, and boundary value problems; application of differential equations to real-world problems. Graphing calculator required.

Course Credit Hours: 3
Lecture Hours: 3
Lab Hours: 1

Prerequisite: MATH 2414

Student Learning Outcomes:

- **State-mandated Outcomes:** Upon successful completion of this course, students will:
  1. Identify homogeneous equations, homogeneous equations with constant coefficients, and exact and linear differential equations.
  2. Solve ordinary differential equations and systems of equations using direct integration, separation of variables, reduction of order, methods of undetermined coefficients and variation of parameters, series solutions, operator methods for finding particular solutions, and Laplace transform methods.
  3. Determine particular solutions to differential equations with given boundary conditions or initial conditions. (Empirical/Quantitative Skills)
  4. Analyze real-world problems in fields such as Biology, Chemistry, Economics, Engineering, and Physics, including problems related to population dynamics, mixtures, growth and decay, heating and cooling, electronic circuits, and Newtonian mechanics. (Critical Thinking, Communication Skills)

Withdrawal Policy: See the current *Collin Registration Guide* for last day to withdraw.

Collin College Academic Policies: See the current *Collin Student Handbook.*

Americans with Disabilities Act Statement: Collin College will adhere to all applicable federal, state and local laws, regulations and guidelines with respect to providing reasonable accommodations as required to afford equal educational opportunity. It is the student's responsibility to contact the ACCESS office, SCC-D140 or 972.881.5898 (V/TTD: 972.881.5950) to arrange for appropriate accommodations. See the current *Collin Student Handbook* for additional information.