MA 238 APPLIED DIFFERENTIAL EQUATIONS I

Course Description. An introduction to numerical methods, qualitative behavior of first-order differential equations, techniques for solving separable and linear equations analytically, and applications to various models (e.g., population, motion, chemical mixtures, etc.); techniques for solving higher-order linear differential equations with constant coefficients (general theory, undetermined coefficients, reduction of order, and the method of variation of parameters), with emphasis on interpreting the behavior of the solutions, and applications to physical models whose governing equations are of higher order; the Laplace transform as a tool for the solution of initial-value problems whose inhomogeneous terms are discontinuous.

Credit Hours: 3

Course Objectives: The course is intended to strengthen the student's understanding of calculus by using it to solve differential equations. It also provides the student with a knowledge of how differential equations can be used to model and solve applied problems, especially in science.

Course Content: Terminology, methods of solving first-order differential equations, differential equations of higher order, modeling with differential equations, the Laplace transform.

Course Requirements: Regular class attendance is expected. Students are required to apply techniques learned in calculus to the solution of differential equations. They are expected to derive and solve differential equations which serve to model a physical process where changes occur as time progresses.

Calculator Policy: Please refer to your instructor's course syllabus to find their course-specific calculator policy.

Course Evaluation: There will be at least 3 major tests and a final exam.

ACCOMMODATION STATEMENT:

In accordance with the Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act of 1973, the University offers reasonable accommodations to students with eligible documented learning, physical and/or psychological disabilities. Under Title II of the Americans with Disabilities Act (ADA) of 1990 and Section 504 of the Rehabilitation Act of 1973, a disability is defined as a physical or mental impairment that substantially limits one or more major life activities as compared to an average person in the population. It is the responsibility of the student to contact ***Developmental Services*** prior to the beginning of the semester to initiate the accommodation process and to notify instructors within the first three class meetings to develop an accommodation plan. Appropriate, reasonable accommodations will be made to allow each student to meet course req7 Tm0 g0 G0.012Tc[Th)]TTEq0.00000912 0 612792 t cou 612792reW8(to no)4