

El Paso Community College

Syllabus

Part II

Official Course Description

SUBJECT AREA	<u>Mathematics</u>
COURSE RUBRIC AND NUMBER	<u>MATH 2320</u>
COURSE TITLE	<u>Differential Equations</u>
COURSE CREDIT HOURS	<u>3 3 :</u> Credits Lec Lab

I. Catalog 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. **Prerequisite: MATH 2314 with a "C" or better. (3:0).**

II. Course Objectives

Upon completion of the course the student will be able to:

- A. Solve first order differential equations and solve application problems.
- B. Linear higher-order differential equations.
- C. Laplace transforms to solve problems.
- D. Use differential equations to find series solutions.
- E. Solve linear systems of differential equations.
- F. Solve boundary value problems (optional).

III. THECB Learning Outcomes (ACGM)

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:
 - a) Direct integration
 - b) Separation of variables
 - c) Reduction of order
 - d) Methods of undetermined coefficients and variation of parameters
 - e) Series solutions
 - f) Operator methods for finding particular solutions
 - g) Laplace transform methods
3. Determine particular solutions to differential equations with given boundary conditions or initial conditions.
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.

IV. Evaluation

There will be at least three in class exams (100 points each) and one required in class comprehensive final exam to evaluate student learning for the course. Refer to Instructor's Course Requirements for specific details. Quiz and homework grades may also be used in the evaluation of the final grade, if the instructor so chooses.

Grading Scale:	A:	90-100
	B:	80-89
	C:	70-79
	D:	60-69
	F:	below 60 or for cheating
	W or I	as indicated in Instructor's Course Requirements

Note: "I" and "W" grades will be assigned whenever the appropriate assignments and deadlines have been met. To receive an I, the students must have completed at least 80% of the course with at least a 75 average. The proper forms must also be signed by both the student and the instructor before being submitted to the registrar.

V. Disability Statement (Americans with/Disabilities Act [ADA])

EPCC offers a variety of services to persons with documented sensory, mental, physical, or temporary disabling conditions to promote success in classes. If you have a disability and believe you may need services, you are encouraged to contact the Center for Students with Disabilities to discuss your needs with a counselor. All discussions and documentation are kept confidential. Offices located: VV Rm C-112 (831-2426); TM Rm 1400 (831-5808); RG Rm B-201 (831-4198); NWC Rm M-54 (831-8815); and MDP Rm A-125 (831-7024).

VI. 6 Drop Rule

Students who began attending Texas public institutions of higher education for the first time during the Fall 2007 semester or later are subject to a 6-Drop limit for all undergraduate classes. Developmental, ESL, Dual Credit and Early College High School classes are exempt from this rule. All students should consult with their instructor before dropping a class. Academic assistance is available. Students are encouraged to see Counseling Services if dropping because exemptions may apply. Refer to the EPCC catalog and website for additional information.

VII. Title IX and Sex Discrimination

Title 9 (20 U.S.C. 1681 & 34 C.F.R. Part 106) states the following "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any educational program or activity receiving Federal financial assistance." The Violence Against Women Act (VAWA) prohibits stalking, date violence, sexual violence, and domestic violence for all students, employees and visitors (male and female). If you have any concerns related to discrimination, harassment, or assault (of any type) you can contact the Assistant to the Vice President for Student and Enrollment Services at 915-831-2655. Employees can call the Manager of Employee Relations at 915-831-6458. Reports of sexual assault/violence may also be reported to EPCC Police at 915-831-2200.