

I. COURSE DESCRIPTION:

MAP-2302: Differential equations, 3 hours lecture, 3 credits.

Prerequisite/Corequisite: MAC-2313 or consent of instructor.

Course Description: A study of the classification, solution, and application of ordinary differential equations and systems of equations. Solutions to differential equations are obtained using both classical and Laplace Transform methods.

II. TEXT:

Differential Equations and Boundary Value Problems, Edwards and Penney, 5th ed., 2015, Pearson

OTHER MATERIALS: A calculator may be used in the course. On test days, only the TI-83 or TI-84 will be allowed. **Although a graphing calculator is required for this course, students will be expected at times to demonstrate mastery of differentiation and integration techniques without a calculator.** Students may be expected to use computers for the completion of projects.

III. STUDENT LEARNING OUTCOMES:

The student will demonstrate mastery and understanding of the following:

1. Classify the order and type of differential equations
2. Use graphic techniques to interpret the solution to differential equations
3. Recognize and solve different types of first order differential equations using appropriate techniques.
4. Solve initial value problems of the above types
5. Formulate a differential equation as a mathematical model of physical situations
6. Be able to solve second order and higher linear ordinary differential equations
7. Use numerical methods to approximate solutions to differential equations
8. Use Laplace transforms to solve initial value problems
9. Understand the difference between general solutions and specific solutions to differential equations and initial value problems
10. Understand linearly independent functions and a basis solution set
11. Transform a given ordinary differential equation into a system of first order equations and solve

IV. COURSE OUTLINE: See daily schedule for detailed outline. The student may be required to do a project outside of class utilizing the techniques presented in class. The instructor will provide details.

V. ATTENDANCE AND WITHDRAWAL POLICIES**A. Attendance Policy:**

Students are expected to attend class every day. Roll will be taken daily.

B. Withdrawal Policy:

Two withdrawals are permitted per course. After that, a grade will be assigned. Please be concerned about withdrawals. When admitting students into certain programs, universities may calculate a withdrawal as an F.

1. Student Withdrawal (Student cannot initiate withdrawal after Withdrawal Date)

Student completes a withdrawal form and submits the form to the Office of Admissions and Records prior to the withdrawal date.

2. Administrative Withdrawal

Students wishing to be withdrawn should withdraw themselves by the deadline. Effective Fall 2013, instructors will not issue withdrawals after the deadline. A grade will be assigned for students who have not withdrawn. If there are extenuating circumstances, a student may appeal to Dr. Melissa Lavender, VP of Student Affairs.

C. Grade Forgiveness:

A student may repeat a course when a grade of "D" or "F" has been earned. The last grade counts. However, universities may count forgiven grades in calculating the grade point average. Forgiven grades may also be calculated in determining financial aid eligibility.

D. Attempts:

This course, which is a college credit course, may be attempted 3 times. On the 3rd attempt, 100% of the full cost of instruction will be charged. Students with extenuating circumstances may submit a letter of appeal stating the circumstances to the dean of students. All grades from the 3rd and subsequent attempts will be calculated in the grade point average.

VI. HOMEWORK:

Homework will be assigned daily. The daily completion of all homework is essential for learning the material in the course and as preparation for the examinations.

VII. TESTING:

Four unit tests will be given. The unit tests will be announced in advance, will count equally, and will be returned. At the option of the instructor unannounced "pop quizzes" and/or outside computer assignments may be given. The average of these optional assignment should count no more than one unit test. There will also be a required group presentation that counts as a test grade. If all unit tests have been taken, the final exam grade may be used to replace the lowest unit test grade. The final exam **cannot** be used to replace the quiz average or group presentation grade. The final exam is comprehensive and **will not** be returned. There are **no exemptions** from the final exam. The student is expected to keep up daily with the assigned work.

VIII. GRADING:

A comprehensive final exam (no exemptions) will count 25% of your grade. If all unit tests have been taken, the final exam may replace the lowest unit test grade. The final exam will **not** be used to replace a missed test, quiz average or group presentation. The college catalog will be used to convert the numerical average to a letter grade. The college grading scale is:
A(100-90), **B**(89-80), **C**(79-70), **D**(69-60), and **F**(59-0)

IX. MAKE UP WORK:

Daily quizzes will lose 10 points for every class period they are late, regardless of the reason for missing class. If you miss a unit test and you have a valid excuse, you are responsible for contacting the instructor to arrange a makeup test (without interrupting class time to do so). If you have not missed any unit tests, the final exam may be used to replace the lowest unit test grade.

X. OTHER:

Studying requires discipline, tenacity, and hard work. View this course as a job. Attendance is absolutely necessary, as well as attentiveness to detail and alertness. You must earn a "C" in this course in order to receive credit.

Available Help:**1. Your Instructor**

Full time faculty have posted ten (10) hours per week on their schedule. Their offices are located in the Student Union West on the 2nd floor (SUW).

2. Communication Through Angel

Students should be encouraged to e-mail one another through Angel and organize study groups in public locations. Do not encourage students to invite people they do not know well to their homes.

Disability Statement

Gulf Coast State College supports an inclusive learning environment for all students. If there are aspects of the instruction or design of this course that hinder your full participation, reasonable accommodations can be arranged. Prior to receiving accommodations, you must register with Disability Support Services. Appropriate academic accommodations will be determined based on the documented needs of the student. For information regarding the registration process, email dss@gulfcoast.edu or call 850-769-1551, Ext. 6071.

4. QEP Vision Statement:

We believe that teaching Critical Academic Literacy (CAL) strategies will improve student learning. Students will construct knowledge as they develop their analysis, synthesis and evaluation skills. CAL strategies must be taught explicitly through direct classroom instruction and be reinforced through consistent practice.

5. Pay for Print:

Pay4Print is installed in all computer labs and in the library. The logon to the system can be found on the Oasis homepage, and will be the same logon ID as the student email, using only the initials and randomly generated number. (You may also access the information by going to www.gulfcoast.edu and clicking on Student Resources and then on Pay4Print.) Students will be required to add money to their print accounts before they are able to print. In labs where students are paying a lab fee, students will not be required to pay for print in those labs during class time. Money can be added to student print accounts by credit or debit card with a minimum of \$5.00 or at patron kiosks or bill acceptors on the Panama City campus at the third floor Library Circulation Desk, the lobby of the Technology Building, and the lobby of the Student Union West Building outside the bookstore. Bill acceptors are also located at the Gulf Franklin Center in room B108, at the Tyndall AFB Center in room 34, and at the North Bay Center in the EOC student break room. Black and white copies will be 5¢, and color copies will be 20¢. There will be no refund on any portion of unused prints.

**CLASSROOM CONDUCT POLICY OF THE
DIVISION OF MATHEMATICS GULF COAST COMMUNITY COLLEGE**

In order to promote a learning environment, in which you as a student may receive the greatest consideration, we will do all we can to prevent unnecessary interruptions and class disruptions. Disruptions will not be tolerated in the classrooms administered by this division. To this end, we remind you that the **instructors are obligated** to adhere strictly to the following policies:

1. Everyone is required to be in class on time. Entering the classroom after the instructor has begun class disrupts the class. The instructor must implement an appropriate policy to discourage late arrivals.
2. Disciplinary action in the case of cheating will be administered in accordance with college policy.
3. The student must have prior consent of the instructor before leaving the class early. If you must leave class early, notify the instructor before the beginning of class. We do not conduct "open" classrooms where individuals may arrive and exit at their discretion. This activity is disruptive to those trying to learn and will not be allowed. If you leave early without prior notification to the instructor, you will not be allowed back in the classroom without first obtaining permission from Mrs. Wilson, Division of Mathematics Chair.
4. The instructor is not to allow talking or other distractions to occur at inappropriate times. There will be **NO usage of electronic communication devices** (including, but not limited to, cell phones, Ipods, PDA's, MP3/Music players, Blackberries, etc) allowed in the classroom. Talking or other disruptive behavior (texting, for example) is a distraction to other students and has no place in a college environment. Students who engage in such behavior will be asked to stop. If the behavior continues, the student will be asked to leave and confer with Mrs. Reynolds, Math Division Chair, concerning the nature of the behavior before being allowed back in the classroom.
5. **No food or drink** is allowed in the classroom.
6. Infractions of discipline are handled by the instructor as final authority. The student has a right to appeal.