



Math 2320.101CL
Differential Equations
Spring 2022
1:30 pm – 2:50 pm T Th

Instructor Information: James Griffiths jgriffiths@com.edu 409-933-8225

Student hours and location: MW 3:30 pm – 5:30 pm
TTh 11:00 am – 12:30 pm
F 10:00 am – 11:00 am

All student hours are in my office, 325-08 in the STEAM building.

Required Textbook: The textbook used in this course is *Fundamentals of Differential Equations*, by R. Kent Nagle, 9th edition, published by Pearson. The homework and quizzes as well as the e-text and videos for this course are on line at mymathlab.com. The access code for MyMathLab may be purchased with the textbook or may be purchased separately on line at mymathlab.com. You need the access code and the course code to gain access to MyMathLab today. The course code is **griffiths89648**.

Course Description: The course covers differentiation and integration of transcendental functions; techniques of integration, applications of integration; sequences and series; improper integrals.

Course requirements:

Technology: A scientific calculator is needed for this course. Either a TI30XIIS or a TI84 plus are recommended. You will need access to the internet to use MyMathLab. If you do not have a computer and/or dependable internet access, contact your professor immediately so that you can discuss any options that may be available to you either through the college or the community.

Homework Assignments on MyMathLab: There is a homework assignment for each unit covered. These are listed on the course outline in the syllabus and on the list of assignments on MyMathLab. Each day's homework assignments must be completed by 11:59 pm on the due date shown on both the course outline and on the list of assignments on MyMathLab. You should do the assignments as soon as possible after participating in the lecture, reading the appropriate section in the text book, and watching the associated video(s) on MyMathLab. Although the homework is online at mymathlab.com, and the answers are entered online, you should write your work on paper, neatly showing all steps, and keep it in your notebook with your notes for future reference, both as an aid for preparing for quizzes and exams, and as a place to begin when seeking assistance from your peers, your professor, or the college tutoring center. The student has a limit of three attempts to answer a question correctly on the homework assignments.

Quizzes on MyMathLab: Four quizzes which relate to the student learning outcomes, will be taken on MyMathLab. Like the homework assignments, the due dates are shown on both the course outline in this syllabus and on the assignment list on MyMathLab. Unlike the homework assignments, the quizzes must be taken in one sitting, they are timed, and the student gets only one attempt to answer each question. The quizzes may be retaken one time. The higher of the two grades will be used to determine the student's quiz average.

Chapter Exams: There are four exams which cover the chapters in the text book. The exams are taken in class on the due dates shown on the course outline in the syllabus. The student has one hour and twenty minutes to take each exam. Exams may not be retaken. However, if the grade on the final exam is higher than the lowest chapter exam grade, the final exam grade will replace the lowest chapter exam grade.

Comprehensive Final Exam: The final exam is taken in class on the due date shown on the course outline in the syllabus. The student has one hour and twenty minutes to take the final exam. The final exam may not be retaken.

Determination of Course Grade/Detailed Grading Formula:

Comprehensive Final Exam	20%
Average of Chapter Exams	60%
Homework Average	10%
<u>Quiz Average</u>	<u>10%</u>
Final Average	100%

Grade I: Given unforeseen circumstances that result in the inability to successfully complete the course objectives, an I-Contract can be requested from the instructor assuming you meet the following criteria:

1. Have a passing overall average (70 or higher)
2. All work completed except for The Final Exam.

Grading Scale:

Grade A: Final Average is [89.5, 100]

Grade B: Final Average is [79.5, 89.5)

Grade C: Final Average is [69.5, 79.5)

Grade D: Final Average is [59.5, 69.5)

Grade F: Final Average is [0, 59.5)

Late Work, Make-Up, and Extra-Credit Policy: There is a twenty (20) point penalty for all homework and quizzes submitted after the due date. Any homework assignments or quizzes that are not finished by the due date of the related exam will be given a grade of zero at that time.

There are no make-up exams unless:

- 1) the student notifies the instructor before the exam due date that they will miss the exam, and
- 2) the reason for the requested make-up exam is extraordinary.

Three points extra credit is given on exams if the student earns a score of 95 or better on the review. Extra-credit assignments may also be given throughout the course at the discretion of the instructor. It is never given at the end of the semester to bring up a poor grade. Do not even ask.

Attendance Policy: Students at COM are expected to attend and participate in every session of all classes for which they are registered. College of the Mainland recognizes no excused absences other than those prescribed by law. Students with excessive absences will be referred to Student Services. Students should consult information provided in My Math Lab and the course calendar when it becomes necessary to miss a class in order to be prepared when they return to class. They are still responsible for work that is assigned during an absence and due dates still hold.

A student is tardy if they enter the class room after class begins. Punctuality is a matter of consideration for other people. When a student arrives to class late or leaves early, they create a distraction to their peers and the professor, delaying or disrupting the learning process. Students who repeatedly arrive late or leave early will be referred to Student Services.

Communicating with your instructor: ALL electronic communication with the instructor must be through your COM email. Due to FERPA restrictions, faculty cannot share any information about performance in the class through other electronic means.

The preferred method of communication in this course is in person. If that is not possible, an email or phone call will be satisfactory. Be sure to include your name, the course in which you are enrolled, and state your question completely. I do not reply to text messages, so do not bother with them.

Table Mapping SLO's and Core Objectives:

Student Learner Outcome	Maps to Core Objective	Assessed via this Assignment
1. Identify homogeneous equations, homogeneous equations with constant coefficients, and exact and linear differential equations.	Communication Skills	Exam
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.	Empirical and Quantitative Skills	Exam
3. Determine particular solutions to differential equations with given boundary conditions or initial conditions.	Empirical and Quantitative Skills	Exam
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 Skills	Exam

Academic Dishonesty: College of the Mainland is committed to a high standard of academic integrity. All students are responsible for honesty and independent effort. Incidents of academic and scholastic dishonesty (including cheating, plagiarism, and collusion) will be dealt with in a manner that is consistent with College Policy and the Student Handbook. Any student found to have been academically dishonest on an assignment, quiz or exam will receive a zero for that assignment, quiz or exam and he or she will be referred to the Office of Student Conduct for further disciplinary action. Please read the sections of *Standards of Student Conduct and Discipline and Penalties* in the on-line Student Handbook.

Student Concerns: If you have any questions or concerns about any aspect of this course, please contact me using the contact information previously provided. If, after discussing your concern with me, you continue to have questions, please contact Mr. Leslie Richardson, Math Department Chair, at 409-933-8329 or lrichardson@com.edu.

Course outline:

<u>Week</u>	<u>Date</u>	<u>Sections Covered</u>
1	1/18	1.1 Background Due 1/21
	1/20	1.2 Solutions of Initial Value Problems Due 1/24
2	1/25	1.3 Direction Fields Due 1/28 Quiz 1 (1.1 – 1.3) Due 1/28
	1/27	2.1 Introduction: Motion of a Falling Body Due 1/31
3	2/1	2.2 Separable Equations Due 2/4
	2/3	2.3 Linear Equations Due 2/7
4	2/8	2.4 Exact Equations Due 2/9 Review for Exam 1 Due 2/9
	2/10	Exam 1 (1.1 – 1.3, 2.1 – 2.4) Due 2/10
5	2/15	3.4 Newtonian Mechanics Due 2/14
	2/17	3.5 Electrical Circuits Due 2/21 Quiz 2 (3.4 – 3.5) Due 2/21

6	2/22 2/24	4.1 Introduction: The Mass-Spring Oscillator Due 2/25 4.2 Homogeneous Linear Equations: The General Solution Due 2/28
7	3/1 3/3	4.3 Auxilliary Equations with Complex Roots Due 3/4 4.4 Nonhomogeneous Equations: The Method of Undetermined Coefficients Due 3/7
8	3/8 3/10	4.5 The Superposition Principle and Undetermined Coefficients Revisited Due 3/11 4.6 Variation of Parameters Due 3/11 Review for Exam 2 Due 3/11
	3/15 3/17	SPRING BREAK HOLIDAY SPRING BREAK HOLIDAY
9	3/22 3/24	Exam 2 (3.4, 3.5, 4.1 – 4.6) Due 3/22 5.4 Introduction to the Phase Plane Due 3/25
10	3/29 3/31	6.1 Basic Theory of Linear Differential Equations Due 4/1 Quiz 3 (5.4, 6.1) Due 4/1 6.2 Homogeneous Linear Equations with Constant Coefficients Due 4/4
11	4/5 4/7	6.3 Undetermined Coefficients and the Annihilator Method Due 4/8 6.4 Method of Variation of Parameters Due 4/11 Review for Exam 3 Due 4/11
12	4/12 4/14	Exam 3 (5.4, 6.1 – 6.4) Due 4/12 7.2 Definition of Laplace Transform Due 4/18
13	4/19 4/21	7.3 Properties of the Laplace Transform Due 4/22 7.4 Inverse Laplace Transform Due 4/25 Quiz 4 (7.2 – 7.4) Due 4/25
14	4/26 4/28	7.5 Solving Initial Value Problems Due 4/29 7.8 Convolution Due 5/2

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| 15 | 5/3
5/5 | Review for Exam 4 Due 5/5
Exam 4 (10.1 – 10.8) Due 5/5 |
| 16 | 5/10
5/12 | Review for Comprehensive Final Exam Due 5/12
Comprehensive Final Exam Due 5/12 |

**** W-Day: April 25, 2022 ****

The syllabus is subject to change at the discretion of the instructor.

Institutional Policies and Guidelines

Grade Appeal Process: Concerns about the accuracy of grades should first be discussed with the instructor. A request for a change of grade is a formal request and must be made within six months of the grade assignment. Directions for filing an appeal can be found in the student handbook.

https://build.com.edu/uploads/sitecontent/files/student-services/Student_Handbook_2019-2020v5.pdf

An appeal will not be considered because of general dissatisfaction with a grade, penalty, or outcome of a course. Disagreement with the instructor’s professional judgment of the quality of the student’s work and performance is also not an admissible basis for a grade appeal.

https://build.com.edu/uploads/sitecontent/files/student-services/Student_Handbook_2019-2020v5.pdf

Academic Success & Support Services: College of the Mainland is committed to providing students the necessary support and tools for success in their college careers. Support is offered through our Tutoring Services, Library, Counseling, and through Student Services. Please discuss any concerns with your faculty or an advisor.

ADA Statement: Any student with a documented disability needing academic accommodations is requested to contact Holly Bankston at 409-933-8520 or hbankston@com.edu. The Office of Services for Students with Disabilities is located in the Student Success Center.

Counseling Statement: Any student needing counseling services is requested to please contact Holly Bankston in the student success center at 409-933-8520 or hbankston@com.edu. Counseling services are available on campus in the student center for free and students can also email counseling@com.edu to set up their appointment. Appointments are strongly encouraged; however, some concerns may be addressed on a walk-in basis.

Textbook Purchasing Statement: A student attending College of the Mainland is not under any obligation to purchase a textbook from the college-affiliated bookstore. The same textbook may also be available from an independent retailer, including an online retailer.

Withdrawal Policy: Students may withdraw from this course for any reason prior to the last eligible day for a “W” grade. Before withdrawing students should speak with the instructor and consult an advisor. Students are permitted to withdraw only six times during their college career by state law. The last date to withdraw from the 1st 8-week session is March 2. The last date to withdraw from the 16-week session is April 25. The last date to withdraw for the 2nd 8-week session is May 4.

F_N Grading: The F_N grade is issued in cases of *failure due to a lack of attendance*, as determined by the instructor. The F_N grade may be issued for cases in which the student ceases or fails to attend class, submit assignments, or participate in required capacities, and for which the student has failed to withdraw. The issuing of the F_N grade is at the discretion of the instructor. The last date of attendance should be documented for submission of an F_N grade.

Early Alert Program: The Student Success Center at College of the Mainland has implemented an Early Alert Program because student success and retention are very important to us. I have been asked to refer students to the program throughout the semester if they are having difficulty completing assignments or have poor attendance. If you are referred to the Early Alert Program you will be contacted by someone in the Student Success Center who will schedule a meeting with you to see what assistance they can offer in order for you to meet your academic goals.

COVID-19 Statement: All students, faculty, and staff are expected to familiarize themselves with materials and information contained on the College of the Mainland’s Coronavirus Information site at www.com.edu/coronavirus. In compliance with Governor Abbott's May 18 Executive Order, face coverings/masks will no longer be required on COM campus. Protocols and

college signage are being updated. We will no longer enforce any COM protocol that requires face coverings. We continue to encourage all members of the COM community to distance when possible, use hygiene measures, and get vaccinated to protect against COVID-19. Please visit com.edu/coronavirus for future updates.

Success Tips:

- Schedule your study time and be diligent in sticking with it. It is recommended that you allocate two hours outside of class for each hour in class.
- Find a study partner.
Studying with another person can help keep you motivated and on task.
- Be an active learner.
 - Attend all your classes and be on time.
 - Listen carefully, take good notes and participate in class.
 - Review your class notes regularly
 - Read the textbook.
 - Do all the assignments.
 - Study for all the exams using the reviews provided. Rework homework problems.
 - Seek help when something is unclear, don't put it off.
- Have a positive attitude. You can learn math!
- Use resources that are available.
- Use the instructor's office hours.
 - Use the free tutoring that is available in the Math Lab, TVB 1306

For a complete list of study skills for mathematics, see the Study Skills tab on MyMathLab.

To register for MyMathLab,

Use a reliable web platform (Google or Firefox are recommended for windows) and go to **mymathlab.com**.

Under **Register Now**, click on **student**.

Read the new page and click on **OK! Register Now**.

Under **Enter course ID**, enter **griffiths36285** and click on **continue**.

Read the new page.

--If you have a Pearson account, enter **user name** and **password** and click **sign in**.

--If you do not have a Pearson account, click **create**. On the new page enter the requested information (follow their lead), accept the license agreement, and click **create account**.

Read the new page.

--If you have the course access code, click **access code**, enter it, and click **finish**.

--If you do not have the course access code, you can either:

--pay for your access to MyMathLab using a credit card or Pay Pal, click **the amount**, enter the requested information, and follow their lead, or

--take advantage of the 14 day free trial offer. In the sentence toward the bottom of the page, click **Get temporary access without payment for 14 days**, on the next page, click **yes**. Warning! If you choose this option and fail to pay the cost of the course \$103.95 within the 14 days, you will be dropped from MyMathLab and you will lose all the grades you have earned.

To Read the e-text on MyMathLab,

Log onto MyMathLab.

Click on your course.

Click on **Multimedia Library** on the menu on the left.

Select the chapter using the drop down menu.

Check the **Multimedia Textbook** box.

Click **Find Now**.

Scroll down. Click on the section you wish to read.

Begin reading.

You can move forward or backward through the pages using the right arrow or left arrow at the top of the page toward the left.

To Watch a Video on MyMathLab,

Log onto MyMathLab. Click on your course.

Click on **Multimedia Library** on the menu on the left.

Select the chapter using the drop down menu.

Select the unit using the drop down menu.

Check the video box. Click **Find Now**.

Click on the video title you wish to watch, (there may be more than one).

To do a homework assignment on MyMathLab,

1. Log into My Math Lab:

- Go to www.mymathlab.com
 - Click the Log In button and enter your Login Name and Password
 - Click on the appropriate class
 - Click on the ALL ASSIGNMENTS button
 - Click on the homework assignment or quiz you wish to do.
2. Read the question and instructions for entering the answer carefully, and show all appropriate work in your notebook.
 3. Enter your answer in the box provided, and then click the CHECK ANSWER button.
 4. If needed, click the SIMILAR EXERCISE button to redo the exercise.
 5. If the submitted answer is correct, click on the SAVE button to send your results to the gradebook. Your grade will show up in the GRADEBOOK and will be automatically accessible by both you and your professor.
 6. Click on the next question to continue.