University of Connecticut

MATH 2410Q: Elementary Differential Equations

Spring 2026 – Syllabus

Basic Information:

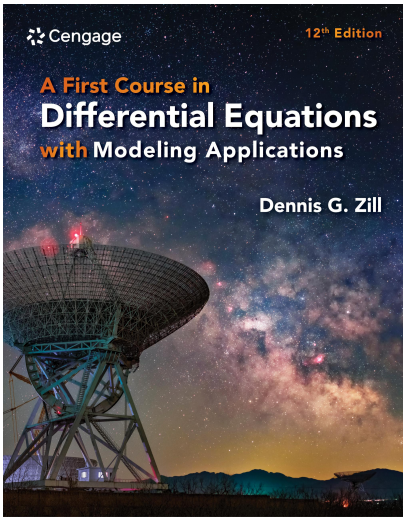
Instructor: Luan Doan, Ph.D.
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Office: Henry Ruthven Monteith Building (MONT) 404
Office Hours: Tuesday & Thursday, 2–4 pm

Course Objectives: From Course Description: "Qualitative, analytical, and numerical methods for first- and second-order single ordinary equations as well as first-order constant coefficient linear systems and some special nonlinear systems. Laplace transform and its application to differential equations."

I would like to add the following:

- Learn the basic techniques to solve some well-known Ordinary Differential Equations (ODEs), especially the first and second-order ODEs.
- Learn about the simple principles and examples of mathematical modeling using differential equations.
- (If we have time) Get familiar with some famous theorems in ODEs and prepare for higher advanced math class (advanced calculus, analysis).

Course Materials: Text: Dennis G. Zill's *A First Course in Differential Equations with Modeling Applications, (12th ed),* which is bundled with a WebAssign code for doing online homework.



- If you have taken a Calculus course at UConn previously (1131Q, 1132Q, and/or 2110Q), then you likely already have access to the book and don't need to do anything.
- If not, you can buy or subscribe to the Husky book bundle at the bookstore. You can also get Cengage Unlimited if you have other Cengage courses and/or don't want a physical book.
- **Note that you need to either pay for the access to Cengage book for subscribe to the Husky book bundle to maintain access to WebAssign homework.** If you don't, the system will block you after the trial period is ended.

WebAssign Homework:

- This course's homework is on an external platform online called WebAssign, which can be accessed when you purchase or subscribe to the UConn Husky book bundle. Assignments are due every **Friday at 11:59pm** of the week (about 2 assignments per week).
- Please check the Calendar tab on HuskyCT as well as the Class Schedule on HuskyCT so as not to miss any homework deadline.

Unless otherwise stated, the following will apply to each question part:

- You have maximally 5 attempts for each question part to get the right answer.
- You should answer in precise fraction (for example, 1/6 rather than 0.166666).
- If you cannot answer in precise fraction, your answer has to be at least 6 decimal places precise, with correct rounding, for example, 1/6 will round up to 0.166667, not 0.166666. We strongly encourage not to round your answer and leave your answer with more than 6 decimal places.

WebAssign's automatic extension policy:
You may request an extension up to 72 hours after the due date with no penalty (that is, the following Monday at 11:59pm). The system will automatically accept your request if you request within the mentioned window of time. Once you request an extension, you have up to 24 hours to finish the late homework. **Three lowest WebAssign scores will be dropped.**

Assessments and Exams:

1. **Homework:**
   - Doing homework help you consolidate what you learned in class, and prepare well for exams. Students should strive to understand how to do homework questions well.
   - The WebAssign homework (see the Homework section) will be worth 20% of your cumulative grade.
   - There are also 6 chapter-review exercises and optional homework Sect. 7.5 that give you **3.5% worth of extra credits** (0.5% each).
   - The lowest 3 homework scores will be dropped (not counting the assignments with extra credits)
2. **Quizzes:**
   - During the week when there is no exam, there will be a short quiz on Friday about the content learned in the previous week to helps students consolidate what they learn and prepare for the exam. Usually the quiz contains one multiple choice question and one short free-response question. The length of each quiz is 15 minutes.
   - There is **no quiz during the week that has midterm exams**.
   - Each quiz has **equal weight** and together they make up **15% of the cumulative grade**.
   - The lowest 2 quiz scores will be dropped.
3. **Exam:** There will be two midterm exams and one final exam. Each midterm exam is worth 20%, and the final is worth 25% of the cumulative grade. **Each midterm exam consists of two parts:** the in-class part that is worth 50% and the take-home part that is worth the other 50% of the total exam score:
   - The **in-class part** of the exam will happen **during class time** and will be **closed-book**, but you can bring in a formula sheet that you prepare on your own, which is a **double-sided letter-sized sheet of paper and hand-written**. The in-class part of the exam consist of **about 5 multiple-choice questions**, and **two short free-response questions** similar to the weekly quiz. Students can use scientific calculators during the exam.
   - The take-home part of the exam will happen after the in-class exam, consist of a few longer free-response questions, and students choose only two questions to explain all the details and calculations, and **turn it in during the next day of class**. Students can use class notes, the textbook, online homework, and a scientific calculator as reference. **No other resources are allowed**. The submission has to be **hand-written** and **individual work**.
4. **The intended dates for in-class exams are as follows:**
   - Midterm 1: Wednesday 2/25
   - Midterm 2: Wednesday 4/15
   - The date and time for the final exam are TBD, but very likely it will be online.

Exam make-up policy: If you anticipate that you cannot take the exam, please send me an email before, or during the day of the exam, and I will schedule a make-up for you. You can make up any exam you missed within one week of returning from your absence.

Weekly Schedule: The following is the tentative schedule of the course and is still subject to change by the instructor:

Week #	Week Dates	Section	Topic	Quiz Content
1	1/20 to 1/23	1.1	Definition and Terminology	No quiz
		1.2	Initial-Valued Problems	
2	1/26 to 1/30	1.3	Diff. Equations as Math Models	1.1, 1.2
		2.1	Solution Curves without a Solution	
3	2/2 to 2/6	2.2	Separable Equations	1.3, 2.1
		2.3	Linear Equations	
4	2/9 to 2/13	2.4	Exact Equations	2.2, 2.3
		2.5	Solutions by Substitutions	
5	2/16 to 2/20	2.6	A Numerical Method	2.4, 2.5
		3.1	Linear Models	
		3.2	Non-Linear Models	
6	2/23 to 2/27	Exam 1 Review		No quiz
		In-class Exam 1 covering Chapters 1,2,3 on Wed 2/25		
		Take-home Exam 1 due Fri 2/27		
		4.1	Preliminary Theory to Linear Equations	
7	3/2 to 3/6	4.2	Reduction of Orders	4.1
		4.3	Homogeneous Linear Equations with Const. Coefficients	
8	3/9 to 3/13	4.4	Undetermined Coefficients to Superposition	4.2, 4.3
		4.6	Variation of Parameters	
	3/15 to 3/22	**Spring Recess (no class)**		
10	3/23 to 3/27	7.1	Definition of the Laplace Transform	4.4, 4.6
		7.2	Inverse Transforms and Transforms of Derivatives	
11	3/30 to 4/3	7.3	Operational Properties I	7.1, 7.2
		7.4	Operational Properties II	
12	4/6 to 4/10	7.5	The Dirac Delta Function	7.3, 7.4
		B.1	Basic Definitions and Theory of Matrices	
13	4/13 to 4/17	Exam 2 Review		No quiz
		In-class Exam 2 covering Ch. 4 & 7 on Wed 4/15		
		Take-home Exam 2 due Fri 4/17		
		B.2	Gaussian and Gauss-Jordan Elimination	
14	4/20 to 4/24	B.3	The Eigenvalue Problem	B.1, B.2
		8.1	Preliminary Theory to Linear Systems	
15	4/27 to 5/1	8.2	Homogeneous Linear Systems	B.3, 8.1
		Final Exam Review		
Final Exam covering all topics (Ch. 1, 2, 3, 4, 7, B, 8) time TBD				

Grading: Here is the list of all grade components:

Online Homework	WebAssign	20%
Quizzes	During class on Friday	15%
Exam 1	In-class 2/25 and take home due 2/27	20%
Exam 2	In-class 4/15 and take home due 4/17	20%
Final Exam:	Week of 5/4 to 5/9	25%
Total		100%

There are additional 3.5% extra credits coming from doing chapter-review homework and Section 7.5 homework assignments on WebAssign.

Grading Scale: The cutoff for letter grade is as follows:

Final Percentage	Letter Grade	Final Percentage	Letter Grade
93–100	A	73.00–76.99	C
90.00–92.99	A-	70.00–72.99	C-
87.00–89.99	B+	67.00–69.99	D+
83.00–86.99	B	63.00–66.99	D
80.00–82.99	B-	60.00–62.99	D-
77.00–79.99	C+	<60	F

Near the end of the semester, I may adjust the schemes, but the cutoffs will only be lower, not higher, if I decide to adjust them. For instance, you may get an A- even if you score a 89 instead of 90 if I see fit, but it will not possible that you score 94 and still get an A-.

Academic Honesty: This course expects all students to act in accordance with the Guidelines for Academic Integrity at the University of Connecticut. In mathematics, this means that all work that you turn in should be written up independently by you, in your own words, and should represent your honest understanding of the material.

On exams and quizzes, it should be noted in particular that this means you must not consult any sources or materials: neighbors' papers, calculators, and any notes, books, or electronic devices are off-limits. Violations of this policy may range from a zero on the assignment to a grade of F in the course. If you have questions about academic integrity or intellectual property, you should consult with your instructor. Additionally, consult UConn's guidelines for academic integrity.

The use of calculators, other outside resources, or collaboration with others are NOT allowed on quizzes and exams.

Students with Disabilities: The University of Connecticut is committed to protecting the rights of individuals with disabilities and assuring that the learning environment is accessible. If you anticipate or experience physical or academic barriers based on disability or pregnancy, please let me know immediately so that we can discuss options. Students who require accommodations should contact the Center for Students with Disabilities, Wilbur Cross Building Room 204, (860) 486-2020, or csd.uconn.edu.

Getting Help: Outside of class time, you have lots of options for getting help with your homework and the concepts in the course:

- Your instructor's office hours
- The Q Center opens in Week 2 of the semester for free drop-in tutoring 6 days a week

How to succeed in this course:

- Participate regularly for understanding, not just for credit.
- Follow all the instructions provided in the learning modules on HuskyCT.
- Read the explanations and examples in the textbook. Do online homework, quizzes, and worksheets on time.
- Check your understanding via Section Concept Guides (in HuskyCT modules).

Student Responsibilities and Resources: As a member of the University of Connecticut student community, you are held to certain standards and academic policies. In addition, there are numerous resources available to help you succeed in your academic work. Review these important standards, policies and resources, which include:

- The Student Code: Academic Integrity, Resources on Avoiding Cheating and Plagiarism
- Copyrighted Materials
- Etiquette and Communication
- Adding or Dropping a Course
- Academic Calendar
- Policy Against Discrimination, Harassment and
- Inappropriate Romantic Relationships
- Sexual Assault Reporting Policy