Math 2410Q-003
Elementary Differential Equations
Spring 2025

Excluding materials for purchase, syllabus information may be subject to change. The most up-to-date syllabus is located within the course in HuskyCT.

Course Information

Course Title: Elementary Differential Equations
Credits: 3
Prerequisites: MATH 1132Q, 1152Q, or 2142Q. Recommended preparation: A grade of C- or better in MATH 1132Q; MATH 2110Q or 2130Q. Cannot be taken after MATH 2144Q, 2420Q, 2720, 3146, 3150, 3410, 3412, 3510, 3710. Repeat restrictions apply; see advising.uconn.edu/repeat-policy.
Class Meetings: TuTh 11:00 – 12:15, Mont 319

Instructor Information

Professor: Nicole Massarelli (You can call me Nicole or Professor Massarelli)
Pronouns: (she/her/hers)
Email: nicole.massarelli@uconn.edu
Office: Mont 303
Office Hours/Availability: Wednesdays 2 – 3pm, Fridays 11 – 12pm, or by appointment

You are welcome to stop by to ask questions or discuss course material without an appointment during these times. If you are unavailable during these times (or they are too busy), feel free to reach out to me and we can schedule an appointment to meet at another time. Be sure to include what class and section you are in when emailing.

Course Materials

The textbook for this course is A First Course in Differential Equations with Modeling Applications by Dennis G. Zill, 11th edition that comes bundles with a WebAssign access code for online homework.

Course Description

This course covers qualitative, analytical and numerical methods for first- and second-order single ordinary equations as well as first-order constant coefficient linear systems and special nonlinear systems. The Laplace Transform and its application to differential equations is covered as well.

Course Objectives

The goal for this semester is to learn what first- and second-order ordinary differential equations are and a variety of methods for finding solutions. You should also be able to describe solutions qualitatively using direction fields and phase portraits. You will learn a variety of methods for solving certain types of equations analytically, including separation of variables, variation of parameters, undetermined coefficients, and the Laplace Transform. We will also explore using differential equations as models and analyze solutions for systems of equations.

Course Requirements and Grading

Category	Overview	Weighting
Online HW	Due weekly on WebAssign	15%
In-Class Practice	Practice problems solved during class and answers recorded in HuskyCT	5%
Quizzes	Weekly quizzes on Thursdays except for exam weeks. Quizzes will cover the material from the previous week.	15%
Midterm Exams	2 exams will be given during the semester.	20% each
Final Exam	Cumulative Final Exam will be given during Final Exam Week	25%

Online Homework

Homework will be completed online via WebAssign, which you should access via our course in HuskyCT. There is an assignment for almost every section of the textbook that we cover, and assignments will be due on Wednesdays at 11:59 PM. The material covered in Week 1 will be due on Wednesday of Week 2, and so on. It is important to start your homework as soon as possible to receive help and get questions answered if needed. You will get 5 attempts to answer each question. After each attempt, you will be told whether or not your answer is correct. You can request an automatic 2-day extension on WebAssign up to 7 days after the original due date, with a **20% penalty**. The last day to complete any graded work is the last day of class.

Quizzes

There will be a weekly quiz on Thursdays except for weeks when we have an exam. Quizzes will consist of a few problems related to the material covered during the previous week. If you must miss a quiz, please contact me **before the scheduled quiz time**. The quiz must be completed **by the following Wednesday**. If you do not meet these requirements, you will receive a 0 for the quiz.

In-class Practice

During each class we will complete practice problems. One of these problems will be graded and you will input your answer on HuskyCT. Each assignment is password protected so you will need to come to class to participate and receive credit. Correct responses will earn 2 points, and incorrect responses will earn 1 point. You must be present in lecture to earn credit and no make-ups will be allowed. With 25 lectures, the maximum number of points that can be earned is 50. The In-class Practice category will be graded out of a total of 40 points (i.e. you will earn a 100% if you achieve 40 points or more). This provides flexibility for missing lectures on account of illness or other personal reasons.

Exams

There will be two midterm exams as indicated on the course schedule and a cumulative final exam that will include the Chapter 8 material. The Final Exam date and time is TBD and will be decided by the registrar's office. You are expected to be available during finals week.
If you need to reschedule an exam for any reason, please talk to me instructor immediately. If you need to reschedule the Final Exam, this must first be approved by the Dean of Students office; I am unable to reschedule without their approval.

For additional information on undergraduate grading policies see here:
https://registrar.uconn.edu/grades/

Grading Scale:

Grade/ Points Earn	Letter Grade	GPA
93-100	A	4.0
90-92.9	A-	3.7
87-89.9	B+	3.3
83-86.9	B	3.0
80-82.9	B-	2.7
77-79.9	C+	2.3
73-76.9	C	2.0
70-72.9	C-	1.7
67-69.9	D+	1.3
63-66.9	D	1.0
60-62.9	D-	0.7
<60	F	0.0

Due Dates and Late Policy

Homework is due weekly on Wednesdays. All homework due dates will be published on each assignment. Online homework will be accepted late, up to 7 days after the original due date, with a 20% penalty. The last day to submit any graded work is the last day of class.

If you **miss a quiz/exam** because you are ill or due to some other extenuating circumstance, you must contact the instructor before the original quiz/exam time, or within 24 after the original quiz/exam time. You must take the quiz/exam by the following Wednesday after the original quiz/exam date. If you do not follow these procedures, then you will receive a score of zero on the missed quiz/exam.

You are responsible for any material that you miss. Any work that is due on a day that you are absent is still due and will be considered late if turned in at a later time. Late work will not be accepted or graded unless you contact the instructor about it.

Calculators

Calculators are permitted for homework but not allowed on quizzes or exams.

Feedback and Grades

I will make every effort to provide feedback and grades within one week. (Exams will be returned one week after they are taken to allow time for make-ups). To keep track of your performance in the course, refer to My Grades in HuskyCT.

Academic Integrity

Please respect your work and the work of others. Cheating will be taken seriously. Examples of things that will be addressed include, but are not limited to, communicating with anyone not explicitly allowed during any quiz or exam, representing another person's work as your own (this includes copying or paraphrasing a solution from a friend, solution manual, tutor, or website), or bringing unauthorized materials to any quiz or exam. Please review UConn's policies here: https://policy.uconn.edu/2023/07/11/academic-scholarly-and-professional-integrity-and-misconduct-aspim-policy-on/

Weekly Time Commitment

You should expect to dedicate 9 to 12 hours a week to this course. This expectation is based on the various course activities, assignments, and assessments and the University of Connecticut's policy regarding credit hours. (More information related to hours per week per credit can be accessed at the Online Student website).

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
- Credit Hours and Workload
- Netiquette and Communication
- Adding or Dropping a Course
- Academic Calendar
- Policy Against Discrimination, Harassment and Inappropriate Romantic Relationships
- Sexual Assault Reporting Policy

Help

Technical and Academic Help provides a guide to technical and academic assistance.

This course uses the learning management platform, HuskyCT. If you have difficulty accessing HuskyCT, you have access to the in person/live person support options available during regular business hours through the Help Center. You also have 24x7 Course Support including access to live chat, phone, and support documents.

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. Students who require accommodations should contact the Center for Students with Disabilities, Wilbur Cross Building Room 204, (860) 486-2020 or http://csd.uconn.edu/.

Tentative Course Schedule
*Note: this schedule may change. Check the schedule on HuskyCT for the most up to date information.

	Week of	Tuesday	Thursday
1	1/20	1.1 Definitions and Terminology Integration Review	Initial-Value Problems
2	1/27	2.1 Solution Curves without a Solution	2.2 Separation of Variables **Quiz 1: 1.1-1.2**
3	2/3	2.3 Linear Equations	2.4 Exact Equations **Quiz 2: 2.1-2.2**
4	2/10	2.4 Cont. 2.5 Solutions by Substitutions	2.6 A Numerical Method (Euler's Method) **Quiz 3: 2.3-2.4**
5	2/17	3.1 Linear Models 3.2 Nonlinear Models	4.1 Preliminary Theory-Linear Equations **Quiz 4: 2.5-2.6**
6	2/24	4.2 Reduction of Order (No WebAssign) Exam Review	**Exam 1** Covers Ch 1-3
7	3/3	4.3 Homogeneous Linear Equations with Constant Coefficients	4.4 Undetermined Coefficients-Superposition Approach
8	3/10	4.6 Variation of Parameters	5.1 Linear Models: Initial-Value Problems (No WebAssign) **Quiz 5: 4.3-4.4**
	3/17	SPRING BREAK, NO CLASS	
9	3/24	7.1 Definition of the Laplace Transform	7.2 Inverse Transforms and Transforms of Derivatives **Quiz 6: 4.6**
10	3/31	7.3 Operational Properties I (Translation on t- or s-axes)	7.4 Operational Properties II (Derivatives, Convolution, Periodic Functions) **Quiz 7: 7.1-7.2**

11	4/7	7.4 Cont.	B.1 Basic Definitions and Theory B.2 Gaussian and Gauss-Jordan Elimination (No WebAssign) **Quiz 8: 7.3-7.4**
12	4/14	B.3 The Eigenvalue Problem Exam Review	**Exam 2** Covers Ch 4, 5, 7
13	4/21	8.1 Preliminary Theory- Linear Systems	8.2 Homogeneous Linear Systems **Quiz 9: B.1-B.3**
14	4/28	Additional Notes: Plotting Phase Portraits	Phase Portraits cont. Review/Catch up
15	5/5	**CUMULATIVE FINAL EXAM TBD**	Schedule determined by registrar's office, you must get approval from the Dean of Students to reschedule the final exam