MATH2410Q: Elementary Differential Equations

Fall 2026

Instructor

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Course Information

Section: 001
Location: MONT 321
Meeting pattern: TuTh 2:00–3:15 pm
Textbook: Zill, *A First Course in Differential Equations*, 12th ed.

Catalog Description

Introduction to ordinary differential equations and their applications, linear differential equations, systems of first order linear equations, numerical methods.

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.

Learning Outcomes

- Classify and solve first-order ODEs such as separable, linear, exact, and Bernoulli equations.
- Interpret differential equations through qualitative analysis, numerical methods, sketching direction fields and understanding equilibrium and phase portrait behavior.
- Analyze the structure of second-order linear ODEs with constant coefficients, obtaining general solutions and apply initial conditions to find particular solutions.
- Perform Laplace transforms to simplify and solve ordinary differential equations.
- Solve systems of first-order linear differential equations with constant coefficients using matrices.
- Model real-world phenomena using differential equations, constructing formulations from physical, biological, or engineering scenarios to represent dynamic behavior mathematically.
- Communicate mathematical reasoning clearly, presenting solutions, interpretations, and modeling assumptions in a structured and precise manner.

Assessments

Homework

Overview	Weekly homework develops fluency with new concepts and connects skills to applications; Your lowest two homeworks will be dropped.
Frequency	Weekly; due **Sun 11:59pm**
Platform	WebAssign
Late Policy	An automatic extension may be requested in WebAssign up to 7 days after the due date. You will receive a 24 hour extension (or an extension up to 7 days after the original due date, whichever is sooner)

Quizzes

Overview	Short 10 minute in-class quizzes
Frequency	Approximately weekly with no set schedule; your lowest two quiz scores will be dropped.
Format	1-2 short questions on the topics of the past week
Allowed Aids	Unless otherwise announced: no notes, cheat sheets, calculators, phones, AI tools, or other devices.

Exams

Overview	Two in-class midterms and a comprehensive final during finals week; see shaded rows in the schedule.
Format	A mix of computational and conceptual problems. Questions may be split into multiple parts.
Allowed Aids	Unless otherwise announced: no notes, cheat sheets, calculators, phones, AI tools, or other devices.
Make-ups	For emergencies or documented conflicts, email me as soon as possible, preferably in advance of the exam
Accommodations	Coordinate with CSD and me at least two weeks before the first exam to finalize arrangements.

Grading

Assessment	**Weight**
Homework	10%
Quizzes	10%
Midterm 1	25%
Midterm 2	25%
Final Exam	30%

Course Policies

How to Succeed

Weekly study plan recommendation:

- **Before class:** skim sections listed for the week; look at the definitions and the main theorems; jot down 2–3 questions on anything that isn't clear to bring up in class.
- **In class:** engage in problems, ask/answer questions, compare approaches, get a feel for problem motivation and where solution ideas come from.
- **After class:** complete the assigned coursework; reflect: "What changed in my understanding?", "What is still not clear to me?"; Ask clarifying questions
- **End of week checkpoint:** try at least one new, unworked problem per section, see if you can solve it from memory without looking at notes or book. If not, review what you didn't you remember or where you got stuck.

Pro tips: use the Campuswire https://campuswire.com/p/GBE18D9FC (Code 1140) for quick help, attend **student hours** (TuTh 12:45–1:45 pm (and by appointment)), and form a study group (2–4 students).

Time Commitment

Plan on **6–8 hours/week** of focused work outside meetings. A typical week might include: *reading and studying (1–2h)*, *homework (2–4h)*, and *review/quiz prep (1–2h)*. If you're spending much more or less, check in with me—we can calibrate your study plan.

Communication Policy

Campuswire: If you have a question outside of class, search or post on Campuswire https://campuswire.com/p/GBE18D9FC (Code 1140).
Student hours: Feel free to come to my office during student hours: TuTh 12:45–1:45 pm (and by appointment).
Email: Email from your uconn.edu email account and use a clear subject line like `MATH2410Q: Topic/Question`. I aim to respond within **24–48 hours** (weekday business hours).

Late/Make-up Policy

Late Homework: An automatic extension may be requested in WebAssign up to 7 days after the due date. You will receive a 24 hour extension (or an extension up to 7 days after the original due date, whichever is sooner)

Quiz or Exam Conflict: For emergencies or documented conflicts, email me as soon as possible, preferably in advance of the exam

Course Culture

We learn best in a community that is **welcoming, respectful, and growth-oriented**. Expect to:

- listen actively and value different problem-solving approaches,
- collaborate freely and ethically—help peers think, don't hand over answers,

If you encounter barriers to inclusion or access, please reach out (and see resources below).

Academic Integrity

Do your own work, show your reasoning, and cite significant help or sources. **When in doubt, ask me first.**

Permitted collaboration: discussing strategies, comparing answers, and debugging *without* copying.

Not permitted: sharing or receiving solutions, using solution banks or AI for answers, or unauthorized aids during quizzes/exams. See the university policylinks:

https://community.uconn.edu/the-student-code/the-student-code-appendix-a/

https://policy.uconn.edu/2023/07/11/academic-scholarly-and-professional-integrity-and-misconduct-aspim-policy-on/.

Well-Being & Resources

You belong here. If you're having difficulties with responsibilities outside the classroom — health, caregiving, work hours, housing — please let me know as soon as possible. We can plan next steps.

Q Center	Tutoring and reviews: https://qcenter.uconn.edu/
CSD	Academic accommodations: https://csd.uconn.edu/
Dean of Students	Resources and support: https://dos.uconn.edu/
Counseling	Mental health: https://studenthealth.uconn.edu/
IT Help	Tech support: https://its.uconn.edu/
UConn Policies	Syllabi Links: https://provost.uconn.edu/faculty-and-staff-resources/syllabi-references/

If you miss class due to illness or emergency, follow campus guidance (https://dos.uconn.edu/frequently-asked-questions/) and email me as soon as you're able so we can create a reasonable plan.

Course Schedule

Week	Dates	Textbook Sections / Topics	Notes
1	08/31–09/04	1.1–1.3: Intro, initial value problems	–
2	09/07–09/11	2.1–2.2: Solution curves, separable equations	–
3	09/14–09/18	2.3-2.4: Linear and exact equations	–
4	09/21–09/25	2.5–2.6: Substitutions and Euler's method	–
5	09/28–10/02	3.1–3.3: Linear and non-linear models	–
6	10/05–10/09	Review and Exam 1	–
	10/08	Exam 1	In-class (75 min); Covers 1.1-1.3, 2.1-2.6, 3.1-3.3
7	10/12–10/16	4.1, 4.3: Linear equations	–
8	10/19–10/23	4.4, 4.6: Undetermined coefficients and variation of parameters	–
9	10/26–10/30	5.1, 7.1: Linear models and Laplace transforms	–
10	11/02–11/06	7.3-7.4: Properties of Laplace transforms	–
11	11/09–11/13	Review and Exam 2	–
	11/12	Exam 2	In-class (75 min); Covers 4.1, 4.3, 4.4, 4.6, 5.1, 7.1-7.4
12	11/16–11/20	B.1-B.3: Matrix operations	–
13	11/23–11/27	–	Thanksgiving Recess
14	11/30–12/04	8.1-8.2: Linear systems of differential equations	–
15	12/07–12/11	8.3: Inhomogeneous systems of linear equations	–
	TBD	Final Exam	TBD; Cumulative