

Ordinary Differential Equations

MATH 3305.001 | SPRING 2025

Course Description

Aristotle said that physics is the study of change. That is, physics is the study of differential equations. Engineering, the sciences, and fields as diverse as economics all study change as well. Current moving through a circuit, chemical reactions, fluid flow, and the price of stocks are all modeled using differential equations. Solving differential equations, we can explicitly find equations that model these changes. In this course, we will be studying methods of solving differential equations. A grade of C or better in Calculus II is required to take this course.

Instructor: Dr. Deborah Koslover

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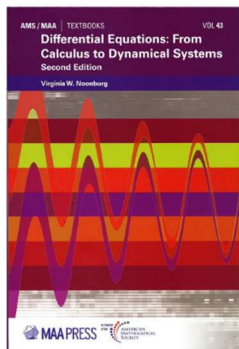
Classroom: RBN 4027

Meeting Time TTh 11 AM -12:20 PM

Office Hours: MW 1:15 – 2:15 PM,

TTH 10:10-11:00 AM and 1:15 – 2 PM

or by appointment.



Textbook

Differential Equations: From Calculus to Dynamical Systems, Second Edition, by Virginia W. Noonburg, AMS/MAA Press, 2010. ISBN 978-1-4704-6329-8.

The library has acquired an e-text which can be accessed at this link
<https://ebookcentral.proquest.com/lib/uttyler/detail.action?docID=5683564>

Website

You will be using Canvas. Go to www.uttyler.edu/canvas to log into Canvas using your regular patriots account. If you have enrolled in the course, you should have access to the website. You will find important documents, grades, lecture notes, and announcements on Canvas.



Attendance is mandatory and attendance records will be kept. Notify Dr. Koslover in advance if you must miss a class, be late for a class or leave early.

(Official University Policy: Class attendance is the responsibility of the student. When a student has a legitimate absence, the instructor may permit the student to complete missed assignments. In many cases class participation is a significant measure of performance, and non-attendance may adversely affect a student's grade. When a student's absences become excessive, the instructor may recommend that the student initiate a withdrawal.)

Learning Outcomes

At the conclusion of this course, you will be able to

1. Determine order, type, and linearity of differential equations.
2. Determine if a particular function is a solution to a differential equation.
3. Find general solutions to first order differential equations.
4. Find general solutions to linear differential equations with constant coefficients.
5. Use the Laplace transform to solve differential equations
6. Model a variety of physical situations using differential equations.
7. Accurately interpret solutions to differential equations in the context of physical applications.

Course Evaluation

At the end of the semester, you will find your final grade on my.utt Tyler.edu. It will also be posted on Canvas.

A final course grade of

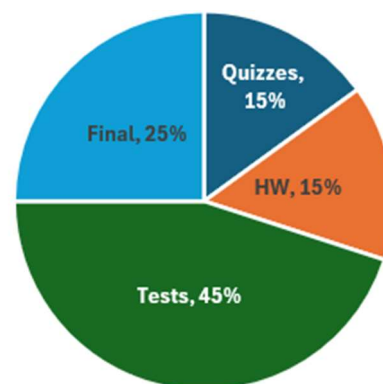
90% is guaranteed to be at least an A

80% is guaranteed to be at least a B

70% is guaranteed to be at least a C

60% is guaranteed to be at least a D.

All grades below 60% will be F.



The Plan

Homework

(15%) Homework will be assigned each class period via the online platform WebWork. You can access the homework assignments at the following link <https://webwork-hosting.runestone.academy/webwork2/uttyler-koslover-math3305-spring2025> Your WebWork username has been emailed to you. Your temporary WebWork password is uttyler. Please change the password immediately upon logging into WebWork for the first time. The login is case sensitive. For example, if your username and password are Lead and uttyler, you will not be able to successfully login if you type lead and UTTyler.

In general, a new homework assignment will become available on WebWork after each class. It will be due Wednesday night (by 5AM Thursday morning) of the following week. The WebWork system provides you with instant feedback on your answers, as well as three attempts to complete most problems. You should use this to your advantage. However, you will not be able to submit solutions after the due date. When computing your final homework grade, I will use your total score on all the WebWork problems. For example, if there are a total of 150 problems throughout the semester, and you successfully complete 120 of them, your homework grade will be 80%. Please let me know as soon as possible if you suspect a problem with WebWorks.

On occasion, an on-paper problem may be assigned. They will need to be scanned and posted on Canvas

Striving for success without hard work is like trying to harvest where you haven't planted.
_David Bly

Q₁₀ U₁ I₁ Z₁₀ Z₁₀ E₁ S₁ (15%): There will be four quizzes. Please see the calendar at the end of the syllabus for dates. The quizzes will be easier than the tests. No quizzes will be dropped. Athletes, please plan to take your quizzes before your trips.

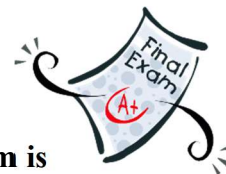
It's not that I'm so smart, it's just that I stay with problems longer. _Albert Einstein

TESTS (15% each) and FINAL EXAM (25%): There will be three tests, held on Fridays, and a final exam. These exams will test your knowledge of the material taught in the class and practiced on the homework. The final exam will be comprehensive but will emphasize material in the final weeks of the course. No tests will be dropped. See Important Dates below for the schedule.

Success is dependent on effort. _Sophocles

Final Exam: Tuesday, April 29, 11 AM – 1 PM

Please don't plan your travel to start before the date the final exam is scheduled!



Make-ups

Make-ups for **documented** absences that are **required** as part of a UT Tyler obligation (e.g. athletes participating in an event, participating in a debate contest, etc.) or for religious observation will be granted. For all make-ups of this type, prior notification of at least one week and documentation are required. Other make-ups are granted only in extreme cases such as hospitalization and at the sole discretion of the instructor.

Make-ups will be allowed for the following excused absences.

- 1) Illnesses, with a doctor's note, no exceptions.
- 2) Your child's illness, with a doctor's note.
- 3) Court appearances, including citizenship court, with documentation
- 4) Weddings, funerals or military advancement with documentation **and** a photograph showing that you attended the event.

Doctor's notes must be dated either before you miss the class or within 2 days after you missed the class, unless you or your child are hospitalized. In case of hospitalization, bring evidence of hospitalization.

Make-ups for test must be taken within 3 days after returning to class except for lengthy illnesses or hospitalizations.

Other Details

AI: AI is not permitted in this course at all. I expect that all work submitted by students for this course to be their own. I have carefully designed all assignments and class activities to support your learning. Doing your own work, without human or artificial intelligence assistance, is best for your efforts in mastering course learning objectives. For this course, I expressly forbid using ChatGPT or any other artificial intelligence (AI) tools for any stages of the work process, including brainstorming. Deviations from these guidelines will be considered a violation of UT Tyler's Honor Code and academic honesty values.

Cell phones and other electronic devices: Please set your cell phones to silent mode. If you are expecting an emergency call, please notify the professor in advance, sit near the door, and answer the phone outside. You will not be allowed to wear electronic devices (except hearing aids) during an exam. During tests, cell phones must be turned off and placed in sight on your desk.

Calculator Policy: No calculators will be allowed on quizzes and exams

Calendar

JANUARY			FEBRUARY			MARCH			APRIL		
MON	TUE	THU	MON	TUE	THU	MON	TUE	THU	MON	TUE	THU
13	14	16	3	4	6	3	4	6		1	3
First Day			10	11	13	10	11	13	7	8	10
20	21	23			Test 1			Test 2			
MLK Day			17	18	20	17	18	20	14	15	17
27	28	30				Spring Break					Test 3
Census Day		Quiz 1	24	25	27	24	25	27	21	22	24
Homework Due Wed Night (Thur morning by 5 AM)					Quiz 2						
						31			28	29	1
						Drop Day				Final Exam	

Final Exam
11AM - 1 PM