

Syllabus for Math 3373, Advanced Ordinary Differential Equations, Springs 2025

Class information

Class time: MWF 11:15AM - 12:10PM
Room: Ratliff Building North 4034

Instructor information

Name: Prof. Joseph Vandehey
E-mail: jvandehey@uttyler.edu
Book: *Nonlinear Dynamics and Chaos: with Applications to Physics, Biology, Chemistry, and Engineering*, second edition
by Steven H Strogatz
Office Hours: 1:30-4:30 PM Thursdays

We will use Canvas in this course. Homework assignments, grades, study guides, and even this syllabus will all be posted to Canvas.

1. COURSE DESCRIPTION

This course explores topics in applied mathematics as they pertain to the physical sciences. Topics include linear and nonlinear systems, phase plane analysis, study of bifurcations, transform methods, mechanics, and chaos, with a focus on theoretical development and physical application.

2. GRADING

Class item	Percent of total grade
Homework	20%
Exams	80%

On exams, the final answer is often worth far less than any other part of the problem. I care about good mathematical process over anything else. Always, always show your work.

As I recognize that life is sometimes hectic, the lowest homework grade will be dropped.

At the end of the semester, your final letter grade will be determined *roughly* as follows:

90% or higher	A
Between 80% and 90%	B
Between 70% and 80%	C
Between 60% and 70%	D
60% or lower	F

Any deviations from the above rubric will only be to your benefit.

3. HOMEWORK

There will be a homework assignment due every Friday (and generally assigned a week prior). Additional homeworks may be assigned throughout the semester. All homework can be turned in virtually on Canvas.

On weekly homeworks, I do not necessarily expect all problems to be completed. Some problems may be marked as “must solve” and those problems I will expect you to finish, but the rest of the problems you will be graded on effort rather than on completion.

You are encouraged to work on homework with others; however, your submitted homework must be something you write up on your own. (So you can figure out how to solve a problem in a group, but write up your answers separately.) For online homework turn-ins, you may take photos of whiteboards or chalkboards if you like. While you may make use of certain resources, such as tutors and calculators, freely on your homework, you may not just copy your answer from an answer key or answer service.

In the case of a pre-arranged excused absence (e.g., for a sporting event), I would still like you to turn in homework on time. For all other excused absences (e.g., a sudden illness), please discuss with me an appropriate time to turn in the homework.

4. MIDTERMS

There will be three midterms during this semester. Each exam, including the final, is worth 20% of your grade.

Exam 1	Friday February 7, Week 4
Exam 2	Friday March 7, Week 8
Exam 3	Friday April 4, Week 11

Midterms will be held in class and last the full class period. If you are late to class, you will not be granted additional time to complete your midterm. Midterms are *not* cumulative and will only cover material discussed in class since the previous midterm. The cut-off date for new material for a given midterm will generally be the Friday the week before the midterm: material from the week of the midterm will *not* appear on the exam.

5. FINAL

Our final will *likely* be Monday, April 28th from 10:15 AM to 12:15 PM.

The final itself will be a one-hour exam no different from any of the other exams. *However*, I am offering an opportunity for students to retake one of their previous exams during the final exam period as well. Students may retake only one exam, and it must be an exam they scored less than 80% on. The retaken exam will replace the previous exam only if the score is higher, up to a maximum of 80%.

6. ADDITIONAL COMMENTS

- Exceptions to the above rules will be made in the case of extreme circumstances (death in the family, severe illness, etc.).
- Cheating is strictly prohibited and carries severe consequences, up to and including expulsion from the university. Use of calculators, laptops, phones, etc., on any exam will be considered cheating.
- If you believe I have graded an exam in error, come see me at the end of the class in which I handed it back. Leaving class with the exam means you accept the grade you have been given.
- Please note that January 29th is the census date for this course, which is the deadline for all registration and schedule changes.
- Important campus-wide policies can be found on the course Canvas page.
- I frown upon the use of erasers on tests. They make me sad.

If you think your work is wrong, cross it out. Do not erase! I can't give partial credit for work that has been erased and I can no longer read.

7. SPECIAL COMMENTS ABOUT AI

UT Tyler is committed to exploring and using artificial intelligence (AI) tools as appropriate for the discipline and task undertaken. We encourage discussing AI tools' ethical, societal, philosophical, and disciplinary implications. All uses of AI should be acknowledged as this aligns with our commitment to honor and integrity, as noted in UT Tyler's Honor Code. Faculty and students must not use protected information, data, or copyrighted materials when using any AI tool. Additionally, users should be aware that AI tools rely on predictive models to generate content that may appear correct but is sometimes shown to be incomplete, inaccurate, taken without attribution from other sources, and/or biased. Consequently, an AI tool should not be considered a substitute for traditional approaches to research. You are ultimately responsible for the quality and content of the information you submit. Misusing AI tools that violate the guidelines specified for this course is considered a breach of academic integrity. The student will be subject to disciplinary actions as outlined in UT Tyler's Academic Integrity Policy.

In this class, to best support your learning, you must complete all graded assignments without the aid of AI. Refrain from using AI tools to generate any course content (e.g., text, video, audio, images, code, etc.) for any classroom assignment.

This syllabus is a general guideline for the course. Deviations may be necessary as the semester progresses.