MATH 2930 Spring 2020: Differential Equations for Engineers

Course Information

Course Staff

Faculty

- Prof. Mahdi Esmaily, me399, Upson 319, 5-2252
- Prof. Alan Zehnder, atz2, Upson 409, 5-9181

TAs

- Frederik De Keersmaeker, fd242 (head TA)
- Emily Dautenhahn, esd54
- Wade Heidel, weh59
- Mark Gluzman, mg2289
- Zachary Frangella, zjf4
- Philip Doldo, pmd93

Course Webpage and Communication

The course webpage at https://canvas.cornell.edu/courses/10455 contains course documents, syllabus, assignments, announcements, and the gradebook. Those enrolled in the course are automatically enrolled in the course website.

There is a Piazza website for the course where you can ask and answer questions about course content. *Do not email course staff with questions about course content.* Either come to office hours (preferred) or post on Piazza.

All homework for the course will be submitted via Gradescope. More information below.

If you have a question or issue not addressed in this document or the other posted information and not a technical question about course content (use office hours or Piazza), please email Frederik De Keersmaeker, the head TA. Please read https://www.wikihow.com/Email-a-Professor before emailing course staff.

Textbook

- Boyce, DiPrima, and Meade, *Elementary Differential Equations and Boundary Value Problems, 11th Edition.* Available electronically via Instant Access.

Course Description (from course catalog)

Introduction to ordinary and partial differential equations. Topics include: first-order equations (separable, linear, homogeneous, exact); mathematical modeling (e.g., population growth, terminal velocity); qualitative methods (slope fields, phase plots, equilibria, and stability); numerical methods; second-order equations (method of undetermined coefficients, application to oscillations and resonance, boundary-value problems and eigenvalues); and Fourier series. A substantial part of this course involves partial differential equations, such as the heat equation, the wave equation, and Laplace's equation.

Prerequisites Math 1920

Getting Help

Your first stop is to come to office hours and discussions. Additional help is available through the Math Department and the College of Engineering. See Canvas: https://canvas.cornell.edu/courses/10455/pages/getting-help-in-math-2930 for details.

Grading and Assessment

Grading will be broken down as follows:

10% Homework Weekly Homework due (with a few exceptions due to exams and school breaks) at midnight every Tuesday via Gradescope. We will drop the two lowest scores. *No late assignments will be accepted for any reason.* See below for additional details.

10% Homework Quizzes Five quizzes will take place during the discussion section following submission of a homework. The dates are posted on Canvas. We will drop the lowest score.

20% Prelim 1

20% Prelim 2

40% Final Exam

1% Bonus Up to 1% bonus for completing midterm and end-of-term course evaluations/surveys and for active participation in course discussion on Piazza.

To report exam conflicts, see Canvas: https://canvas.cornell.edu/courses/10455/pages/reporting-exam-conflicts-and-s-dot-d-s-accommodations

Homework

Homework assignments are meant to give each student experience thinking about and solving relevant problems. You are encouraged to work with classmates on the homework but each student should be sure to understand every aspect of each assignment. If you get help from any source you must acknowledge that help in a clear statement on your homework assignment, such as, "I worked with Jane Doe and Joe Blow and attended Elliot's office hours. I also used Paul's Online Math Notes."

Rules for Homework:

- No late homework accepted for any reason.
- Lowest two homework grades will be dropped.
- Points will be deducted if your homework is not easy to grade. This means anything handwritten must be clearly legible. Each homework problem should be clearly organized.

We will use Gradescope this semester to grade homework and exams. Homework is always due on Tuesdays at midnight. Late homework will not be accepted. Please read the following pdf or consult https://www.gradescope.com/help for information on how to submit assignments. The document you upload should be a high quality scan. Either use a scanner or take a picture with one of your devices using one of the recommended apps to enhance its quality.

Gradescope Homework Submission Checklist:

- Easy to read: you should make a high quality, high contrast scan. Use a scanning app.
- Only the homework: if you take a picture, use a scanning app to crop it so the scan only contains the page.
- Right order: make sure your pages are in the right order. When you upload your work to Gradescope, you can reorder the pages there.

- Right orientation: make sure your scans are not upside down or tilted. You can rotate the scans in Gradescope after you upload them.
- Select pages: Assign the pages of your submission to the correct problems on Gradescope. Take a look at the Homework Submission Video.

If you have any special circumstances surrounding homework, such as extended illness, trouble with Gradescope, etc., contact the head TA.

Academic Integrity

This course adheres to all aspects of Cornell's Code of Academic Integrity. Any work presented as your own must be your own, with no exceptions tolerated. All violations of this policy will result in a failing grade on the relevant assignment or exam. During exams you will be asked to place your Cornell ID where we can see it.
The code can be found at: http://cuinfo.cornell.edu/aic.cfm

Classroom Expectations

Research has demonstrated that the best learning occurs when the learner is actively involved. There will be frequent opportunities for students to work together during lectures. We expect you to come to class prepared to focus, sit near and interact with classmates, and participate in the activities.

We expect all students to be respectful of each other and the instructors. Do not be distracting. Turn off and put away mobile devices. Any computer or tablet use must be directly related to the current class activities. Taking notes is fine; watching videos or scrolling through news or social media is not.

You can expect us to be respectful of you and to foster a learning environment where students of all backgrounds and perspectives are well served and can contribute, free from disrespect, discrimination, or harassment.

Note about accommodations

If you have a disability-related need for reasonable academic adjustments in this course, provide complete the survey posted on Canvas at https://canvas.cornell.edu/courses/10455/pages/reporting-exam-conflicts-and-s-dot-d-s-accommodations. Provide your discussion section TA with an accommodation letter from Student Disability Services by February 9 or at least two weeks prior to the need for such adjustments.

If you are experiencing undue personal or academic stress during the semester, we encourage you to reach out for support. Course instructors can talk with you about the work associated with this class. Many additional resources are available, such as:

- CAPS (Cornell Health's counseling and psychological services) 255-5155
- EARS Peer Counseling 255-EARS, 213 Willard Straight Hall
- Learning Strategies Center 255-6310
- Math Support Center