Math 2250-013, Differential Equations and Linear Algebra, Fall 2020

Instructor Information	Instructor: Chee Han Tan (My first name is Chee Han) Pronouns: he/him/his What to call me: Chee Han Office: JWB 129, Department of Mathematics (JWB is on President's circle, east of Kingsbury Hall) Email: tan@math.utah.edu (Please include "Math 2250" in the subject line) Office Hours: Wednesday Friday 1:10PM - 2:10PM. These will be held in Zoom.
Accessibility and Support	You may contact me by email or through Canvas email. You can expect my replies within one day of sending during normal daytime hours, although I will often respond much sooner. If you would like to meet individually to talk about individual stuff, math concepts, or make a studying/learning plan, please contact me to set-up a time. We will meet in Zoom.
Prerequisites	"C" or better in (MATH 2210 OR MATH 1260 OR MATH 1280 OR MATH 1321 OR MATH 1320 OR ((MATH 1220 OR MATH 1250 OR MATH 1270 OR MATH 1311 OR AP Calculus BC score of 5) AND PHYS 2210 OR PHYS 3210)). *Important note*: The mathematics department DOES enforce prerequisites for all undergraduate courses. If you were able to register for this class based on your enrollment in the prerequisite course last semester and you did not receive the minimum grade in that course to enter this class, then you will be dropped from this class on Friday of the first week of classes. If you are in this situation, it is in your best interest to drop yourself from this class and enroll in a class for which you have the prerequisites before you are forcibly dropped.
Course Information	Course Type: Interactive Video Conferencing (IVC - synchronous online) Class Meetings: MWF 11:50AM - 1:10PM Lab Meetings (IVC format): Thursdays 11:50AM - 12:40PM (Section 014) or 12:55PM - 1:45PM (Section 015)
Attendance and Punctuality	Attendance to the online lecture is strongly encouraged but not required. However, during both midterms and the final exam you are required to attend on time and online.
COVID-19 Considerations	Students must self-report if they test positive for COVID-19 via https://coronavirus.utah.edu/. Remember to maintain social distancing at all times. Face coverings are required for students and faculty.
Textbook	*Differential Equations and Linear Algebra*, 4th Edition, by C. Henry Edwards, David E. Penney, and David Calvis. ISBN-13: 978-0134497181. More information can be found at the link below: http://www.math.utah.edu/schedule/bookInfo/M2250TextInclusiveAccess-1.pdf. Students can choose to use the e-text for an affordable charge on their tuition bill, or OPT OUT by following the instructions in an email they will be sent - they can contact the bookstore if they don't see the email too. This newer 4th edition are the same as the ones in the 3rd edition, with the exception that there is one new section in Chapter 7 that comes in the 4th edition. Students are welcome to use the 3rd edition if they have a copy and the instructor can provide some work arounds for that one section.
Canvas	Canvas will be used for posting course announcements, homework assignments, grades, files, and any relevant supplementary material. You are also encouraged to make sure of the Canvas discussion board to discuss course problems or topics. You can access the Canvas page through CIS or go to https://utah.instructure.com/courses/634068. You should check the Canvas page regularly for course information and resources. I will hold you accountable for receiving these information. Email notifications and correspondence will be sent to the student's UMail address ([u-number]@utah.edu), so be sure to check the UMail account regularly. Alternatively, you can have Canvas notifications and announcements forwarded to an email address that you do check regularly.
Learning Method	The instruction will be delivered as a flipped classroom. For each section a short video, quiz, and worksheet will be posted prior to the Zoom lectures. During lecture, you will be able to ask questions on the work you have done at home, work on the day's assignment using the breakout rooms feature in Zoom, and prepare for the next topic. For each lecture video, you will complete a short multiple choice quiz on Canvas. You will also turn in weekly homework electronically via Gradescope.

Lecture Videos	The lecture videos for this course will be made in collaboration with Nathan Willis who is the instructor this semester for MATH 2250-001. Chee Han and Nathan will create the lecture notes together and alternate making the lecture videos by chapter.
Remote Learning Technical Requirements	Knowledge and navigation of Canvas, Zoom (through Canvas) and Gradescope (through Canvas) is critical to access all features and resources of this course. When joining Zoom, you should turn off your microphone to minimise background noise. You might choose to turn on your camera or you might use a picture if keeping the camera off. Either having a picture or turning on the camera will help me matching a name and a face. You can ask questions either by using the microphone and the Raise Your Hand button or by typing it in the chat box. A strong internet connection and adequate bandwidth are needed to join a live Zoom session. For technical assistance, review the Canvas and Gradescope *Getting Started Guide for Students* and/or contact TLT, Knowledge Commons, etc. If you anticipate any connectivity issues or if you plan to be in a vastly different time zone, you should let me know as soon as possible. It is your responsibility to maintain your computer and related equipment in order to participate in the online portion of the course. Equipment failures will not be an acceptable excuse for late or absent assignments.
Technology	Calculators are not allowed on any exams. Students are not expected to have prior programming experience, but will be required to run portions of code that will be provided in lectures and labs. The code will use the following programs: MATLAB, Maple, and Mathematica. These programs are great resources to check homework assignments prior to submitting them for evaluation. I encourage you to review your work before instructor evaluation.
Important Dates	**Mandatory Online Instruction Periods:** All classes will be online the weeks of September 28 - October 9 and November 30 - December 3.

Exam Dates: October 2, November 6, December 7.

Classes begin .... Monday, August 24
Last day to add without a permission code .... Friday, August 28
Last day to add, drop (delete), elect CR/NC, or audit classes ...... Friday, September 4
Labor Day (No Class) .... Monday, September 7
Instruction for all classes online .... September 27 - October 11
MIDTERM EXAM 1 .... **Friday, October 2 (regular class time)**
Last day to withdraw from classes .... Friday, October 16
MIDTERM EXAM 2 .... **Friday, November 6 (regular class time)**
Conclusion of in person instruction .... Wednesday, November 25
Thanksgiving Break (No class) .... November 26 - 29
Last day to reverse CR/NC option .... Friday, November 27
Class resume online .... Monday , November 30
Classes end .... Thursday, December 3
FINAL EXAM .... **Monday, December 7, 10:30AM - 12:30PM**

Please check the academic calendar for more information pertaining to dropping and withdrawing from a course. Withdrawing from a course and other matters of registration are the student's responsibility.

Expected Learning Outcomes

Basic Topics

1. Be able to model dynamical systems that arise in science and engineering, by using general principles to derive the governing differential equations or systems of differential equations. These principles include linearisation, compartmental analysis, Newton's laws, conservation of energy, and Kirchoff's Law.

2. Learn solution techniques for first order separable and linear differential equations. Solve initial value problems in these cases, with applications to problems in science and engineering. Understand how to approximate solutions even when exact formulas do not exist. Visualise solution graphs and numerical approximations to initial value problems via slope fields.

3. Become fluent in matrix algebra techniques, in order to be able to compute the solution space to linear systems and understand its structure; by hand for small problems, and with technology for large problems.

4. Be able to utilise the basic concepts of linear algebra such as linear combinations, span, independence, basis, and dimension to understand the solution space to linear equations, linear differential equations, and linear systems of differential equations.

5. Understand the natural initial value problems for first order systems of differential equations, how they encompass the natural initial value problems for higher order differential equations, and general systems of differential equations.

6. Learn how to solve constant coefficient linear differential equations via superposition, particular solutions, and homogeneous solutions found via characteristic equation analysis. Apply these techniques to understand the solutions to the basic unforced and forced mechanical and electrical oscillation problems.

7. Learn how to utilise Laplace transform techniques to solve linear differential equations, with an emphasis on the initial value problems of mechanical systems, electrical circuits, and related problems. Be able to find eigenvalues and eigenvectors for square matrices. Apply these matrix algebra concepts to find the general solution space to first and second order constant coefficient homogeneous linear systems of differential equations, especially those arising from compartmental analysis and mechanical systems.

8. Develop your ability to communicate modelling and mathematical explanations and solutions, using technology and software such as Maple, MATLAB, or internet-based tools as appropriate.

Problem Solving Fluency

1. Students will be able to read and understand problem descriptions, then be able to formulate equations modelling the problem usually by applying geometric or physical principles. Solving a problem often requires a series of transformations that include utilising the methods of calculus. Students will be able to select the appropriate calculus operations to apply to a given problem, execute them accurately, and interpret the results using numerical and graphical computational aids.

2. Students will gain experience with problem solving in groups. Students should be able to effectively transform problem objectives into appropriate problem solving methods through collaborative discussion. Students will also learn how to articulate questions effectively with both the instructor and TA, and be able to effectively articulate how problem solutions meet the problem objectives.

Grading Grades for each student will be calculated using the following formula:

Homework Assignments (20%) + Quizzes (10%) + Labs (15%)
+ Midterm Exams (2 × 15% = 30%) + Final Exam (25%)

Homework Assignments - Roughly 3-4 textbook sections are due every Wednesday at 11:59pm (Mountain Time). Homework will typically cover lectures through to the preceding Wednesday (with possibly a little spill-over to Friday). See the "Assignments" tab in Canvas for the list of assigned problems. Three of the problems will be selected for grading, each graded out of 5 points; completion and submission counts for 5 points. Two lowest homework scores will be dropped. Homework will be collected electronically on Gradescope. No late homework will be accepted.

Quizzes - There will be a short 2-4 problems quiz, taking roughly 10-15 minutes to complete, administered through Canvas for each lecture video. Videos are assigned weekly and all quizzes for the week close Sunday at 11:59pm (Mountain Time), which means for any section you will have 2-5 days to complete the quiz after the video is uploaded. It is strongly recommended to complete the quiz immediately after watching the lecture video and attending the corresponding Zoom lecture. Late quizzes will be accepted for partial credit as follows: Each day it is late 20% will be deducted, therefore after 5 days a zero will be given.

Labs - Every Thursday a Teaching Assistant (TA) directed lab section will be held in Zoom. These lab sections will have smaller class sizes, consisting of working on lab worksheets. The lab worksheets will tend to cover longer, more in-depth problems than that found in homework assignments and exams, and will sometimes require use of instructor-supplied Maple or MATLAB software to complete. The TA will be there to help guide students through the problems. Complete of worksheets will require work outside of the lab hour. The lab serves the goal of learning complete problem solving fluency, where students will develop skills to solve problems involving multiple coordinated skills, including interpretation and identification of relevant variables and unknowns, operationalisation of the question into a series of executable methods, and interpretation and communication of results.

Attendance to the lab section and participation in the lab is mandatory and **attendance/participation will be taken each week by the TA**. Credit will be broken out into 3% lab attendance and 12% for well-written lab worksheet-reports. To receive attendance points you must arrive in lab within 5 minutes of the start time and must stay until the end of class. Labs will be collected electronically on Gradescope. The lowest lab score will be dropped. No late lab assignments will be accepted.

Midterm Exams - Two 50-minute midterm exams will be administered through Gradescope on select Fridays **during the regular class time**. A review sheet will be posted a week prior to the midterm that will cover the exam material. Review of the practice problems will occur in the lab before the exam. Please note the date:

MIDTERMS: October 2 & November 6, all on Fridays

Final Exam - A two-hour comprehensive exam will be administered through Gradescope. As with the midterms, a review sheet will be posted a week prior.

FINAL: Monday, December 7, 10:30AM - 12:30PM

There will be no make-up homework assignments, quizzes, labs, and exams. There will be no retakes of midterm and final exams for any reason. All students are expected to arrange their personal schedule to allow them to take the midterm and final exams. Students with conflicts should speak to the instructor as soon as possible but unless it is an absolute emergency no student will be allowed to take any exam early.

| **Letter Grades** | You should monitor your course grade throughout the semester by looking at "Grades" in Canvas. At the end of the semester, the "total grade", not the "final exam grade" is used to determine the course letter grade. Letter grades will be assigned from your percentage total grade X as follows: |

$$93 \leq X \leq 100 \implies \text{A} \qquad 73 \leq X < 77 \implies \text{C}$$
$$90 \leq X < 93 \implies \text{A}- \qquad 70 \leq X < 73 \implies \text{C}-$$
$$87 \leq X < 90 \implies \text{B}+ \qquad 66 \leq X < 70 \implies \text{D}+$$
$$83 \leq X < 87 \implies \text{B} \qquad 60 \leq X < 66 \implies \text{D}$$
$$80 \leq X < 83 \implies \text{B}- \qquad 50 \leq X < 60 \implies \text{D}-$$
$$77 \leq X < 80 \implies \text{C}+ \qquad X < 50 \implies \text{E}$$

Uploading to Gradescope

Gradescope will be accessible through a link on Canvas. To submit an assignment or problem on an exam, take a picture or scan it and then upload it following the directions given online. The following rules apply:

- Unreadable problems or poorly scanned problems will not be graded;

- The orientation needs to be upright and not mirrored;

- Make sure there is no shadow when you take the picture of the problems;

- Pen is often easier to read than pencil, and certainly do not erase and then write over text;

- Clearly separate your problems and make your solutions as neat and legible as possible;

- Show your work and use proper mathematical notation;

- Only use techniques discussed in the corresponding section and in this class;

- Unless specifically asked for a numerical answer, keep constants like e, π, and expressions involving roots and fractions as is in your answers.

Zeros will be given to missing problems in your uploaded assignments or exams. No paper or emailed homework will be accepted.

Conflict and Regrading

Any conflict leading to missed deadlines are your responsibility and must be arranged ahead of time. Failure to do so may result in a zero for the corresponding assignment. Regrading inquiries must be submitted electronically on Gradescope or Canvas within a week of the graded work being returned to the student.

Resources to Help You

Here are various resources for students, some math-related and some human-related.

Math Department Tutoring Center - The T. Benny Rushing Mathematics Student Center offers free drop-in online tutoring. Click here for more information: https://utah.instructure.com/courses/613503/.

UofU Learning Center (formerly ASUU Tutoring; offers subsidised one-on-one tutoring) - The Learning Center offers 3 free tutoring sessions per student per semester. Additional hours can be purchased after that. Scholarship assistance is also available. Click here for more information: https://learningcenter.utah.edu/.

Equipment Help - The UofU has a laptop and mobile hotspot loan program - laptops, mobile hotspots mailed to current U students on a first-come, first-served basis. Click here for more information: https://union.utah.edu/covid-19/ or https://lib.utah.edu/coronavirus/checkout-equipment.php.

General Help, in particular in light of COVID-19 - Click this link for information from the University about logistics in light of COVID-19, financial assistance, counseling, the food pantry, and much more: https://coronavirus.utah.edu/#students.

Expectations for Online Learning Environment (Netiquette)	Respectful participation in all aspects of the course will make our time together productive and engaging. Zoom lectures, discussion threads, emails, and Canvas are all considered equivalent to classrooms and student behaviour within those environments shall conform to the Student Code. Specifically: • Posting photos or comments that would be off-topic in a classroom are still off-topic in an online posting. • Disrespectful language and photos are never appropriate. • Using angry and abusive language is not acceptable, and will be dealt with according to the Student Code. I may remove online postings that are inappropriate. • Do not use ALL CAPS, except for titles, or overuse certain punctuation marks such as exclamation points and question marks. • Avoid slang terms such as "wassup?" and texting abbreviations such as "u". • Be cautious when using humour or sarcasm as tone is sometimes lost in an email or discussion post and your message might be taken seriously or be offensive to others.
Extenuating Circumstances	If you have crisis-level extenuating circumstances which require flexibility, it is your responsibility to communicate with me as soon as possible so I can help you in some manner. The longer you wait to communicate with me, the less I can and am willing to do to help.
Student Code	Students are encouraged to review the Student Code for the University of Utah (https://regulations.utah.edu/academics/6-400.php). In order to ensure that the highest standards of academic conduct are promoted and supported at the University, students must adhere to generally accepted standards of academic honesty, including but not limited to refraining from cheating, plagiarizing, research misconduct, misrepresenting one?s work, and/or inappropriately collaborating. A student who engages in academic misconduct as defined in Part I.B. may be subject to academic sanctions including but not limited to a grade reduction, failing grade, probation, suspension or dismissal from the program or the University, or revocation of the student?s degree or certificate. Sanctions may also include community service, a written reprimand, and/or a written statement of misconduct that can be put into an appropriate record maintained for purposes of the profession or discipline for which the student is preparing.Incidents of academic misconduct will be subject to penalty per Section V of Policy 6-400, the Student Code. All students are expected to maintain professional behavior in the classroom setting, spelled out in the Student Handbook. Students have specific rights in the classroom as detailed in Article III of the Code. According to Faculty Rules and Regulations, it is the faculty responsibility to enforce responsible classroom behaviors, beginning with verbal warnings and progressing to dismissal from class and a failing grade. Students have the right to appeal such action to the Student Behavior Committee.
ADA Statement	The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability & Access, 162 Olpin Union Building, 801-581-5020. CDA will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in alternative format with prior notification to the Center for Disability & Access.
Addressing Sexual Misconduct	Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information. If you or someone you know has been harassed or assaulted on the basis of your sex, including sexual orientation or gender identity/expression, you are encouraged to report it to the University's Title IX Coordinator; Director, Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or to the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to police, contact the Department of Public Safety, 801-585-2677(COPS).

Campus Safety	The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit https://safeu.utah.edu/.
Classroom Social Equity	Canvas allows you to change the name that is displayed and allows you to add your pronouns. Class rosters are provided to the instructor with your legal name as well as "Preferred first name" (if previously entered by you in the Student Profile section of your CIS account, which can be managed at any time). While CIS refers to this as merely a preference, I will honour you by referring to you with the name and pronoun that feels best for you in class, on papers, exams, assignments, etc. Please advise me of any name or pronoun changes (and update CIS) so I can help create a learning environment in which you, your name, and your pronoun will be respected. Additionally, you can indicate your pronouns in Zoom. I strive to be ethical, kind, fair, inclusive, and respectful in the classroom and expect you to behave likewise. In this regard, I request that:

- If you have any sort of anxiety disorder, TBI, PTSD, C-PTSD, or any other challenge that might cause being called out in class or working in groups psychological harm, then please do tell me, discreetly. I will confidentially accommodate any such request.

- If there is ever a time that you feel this course or the curriculum is not equitable, please email me or meet with me to discuss such concerns.

If you need any assistance or support, please reach out to the LGBT Resource Center https://lgbt.utah.edu/. |
Inclusivity Statement	It is my intent that students from all diverse backgrounds and perspectives be well served by this course, that students? learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength and benefit. It is my intent to present materials and activities that are respectful of diversity: age, color, disability, gender, gender identity, gender expression, national origin, political affiliation, race, religion, sexual orientation, and veteran status, and other unique identities. gender, sexuality, disability, age, socioeconomic status, ethnicity, race, culture, and other unique identities. Your suggestions are encouraged and appreciated. Please let me know ways to improve the effectiveness of the course for you personally or for other students or student groups. In addition, if any of our class meetings conflict with your religious events, please let me know so that I can make arrangements for you.
Discrimination and Harassment	If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or Office of the Dean of Students, 270 Union Building, 801-581-7066. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS). Please see Student Bill of Rights, section E https://regulations.utah.edu/academics/6-400.php. I will listen and believe you if someone is threatening you.
Wellness Statement	Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student's ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness at https://www.wellness.utah.edu or 801-581-7776.
Learners of English as an Additional/ Second Language	If you are an English language learner, please be aware of several resources on campus that will support you with your language and writing development. These resources include: the Writing Center https://writingcenter.utah.edu/; the Writing Program https://writing-program.utah.edu/; the English Language Institute https://eli.utah.edu/. Please let me know if there is any additional support you would like to discuss for this class.
Incompletes	According to university policy, to be considered for an incomplete, a student must have 20% or less of the course work remaining and be passing the course with a C or better. You must request an incomplete grade and I will consider giving that grade only under exceptional circumstances.
Academic Misconduct	If you cheat on any homework, project, quiz, or exam, you will automatically get a zero for that grade. Depending on the severity of the cheating, I may decide to fail you from the class. If you exhibit any other behaviours that are unethical, like offering me a bribe to give you a better grade (even if you later claim you were joking), I will report your behavior to the Dean of Students.

Undocumented Student Support	Immigration is a complex phenomenon with broad impact - those who are directly affected by it, as well as those who are indirectly affected by their relationships with family members, friends, and loved ones. If your immigration status presents obstacles to engaging in specific activities or fulfilling specific course criteria, confidential arrangements may be requested from the Dream Center. Arrangements with the Dream Center will not jeopardise your student status, your financial aid, or any other part of your residence. The Dream Center offers a wide range of resources to support undocumented students (with and without DACA) as well as students from mixed-status families. To learn more, please contact the Dream Center at 801-213-3697 or visit https://dream.utah.edu/.
Veterans Center	If you are a student veteran, the University of Utah has a Veterans Support Center located in Room 161 in the Olpin Union Building. Please visit their website for more information about what support they offer, a list of ongoing events and links to outside resources: http://veteranscenter.utah.edu/. Please also let me know if you need any additional support in this class for any reason.
Student Success Advocates	The mission of Student Success Advocates is to support students in making the most of their University of Utah experience (https://ssa.utah.edu/). They can assist with mentoring, resources, etc. Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact a Student Success Advocate for support (https://www.asuu.utah.edu/).
University Counselling Center	The University Counseling Center (UCC) provides developmental, preventive, and therapeutic services and programs that promote the intellectual, emotional, cultural, and social development of University of Utah students. They advocate a philosophy of acceptance, compassion, and support for those they serve, as well as for each other. They aspire to respect cultural, individual and role differences as they continually work toward creating a safe and affirming climate for individuals of all ages, cultures, ethnicities, genders, gender identities, languages, mental and physical abilities, national origins, races, religions, sexual orientations, sizes and socioeconomic statuses.
Office of the Dean of Students	The Office of the Dean of Students is dedicated to being a resource to students through support, advocacy, involvement, and accountability. It serves as a support for students facing challenges to their success as students, and assists with the interpretation of University policy and regulations. Please consider reaching out to the Office of Dean of Students for any questions, issues and concerns. 200 South Central Campus Dr., Suite 270. Monday-Friday 8 am-5 pm.
Additional Policies	Due to experience, I have decided to make some additional policies regarding my course administration and grading.

1. All correspondence for this class will be done through UMail or Canvas. You need to be checking your UMail daily during the week, and also checking for Canvas updates and announcements. If you do not check your UMail or Canvas regularly, you should have your messages forwarded to an email address that you do check regularly. It is your responsibility to stay caught up on announcements, schedule changes, etc., and not seeing an email with the information is not an excuse.

2. You should always feel free to email me at tan@math.utah.edu (Please include "Math 2250" in the subject line) or contact me through Canvas with questions about course material, your grade, course policies, other concerns, or to set up a meeting outside of office hours. I will respond to all student emails in a timely fashion (within 24 hours, but more quickly if it is a time sensitive situation) between 8am and 5pm on weekdays. If you email me after 5pm I may not get back to you until the next day. If you email me over a weekend, I may not get back to you until the following Monday. (But I will do my best to respond to time-sensitive emails as soon as possible). Also, if you are emailing with a question regarding a math problem: It helps me immensely if you include the problem statement (either typed out or attached as a photo or scanned image) and also a brief summary of steps you have taken so far (again, either typed out or attached in an image). This will allow me to give you the best feedback possible.

3. There will be no cursing nor negative ranting (for example, "math sucks") on any written work turned in. The penalty for such things on your written work will be a zero score on that assignment or test.

4. If there are any emergencies that prevents you from attending the exam or turning in homework, it is 100% your responsibility to notify me before any of these events. I will try my best to accommodate and help you in some manner, which I am truly happy to do; but the longer you wait to communicate me, the less I can and am willing to do to help. The best way to contact me is by email or in office hours. Please keep in mind that I do not check my email regularly during the weekend.

5. Please make sure you do your best throughout the semester, knowing the grading scheme and what's expected of you, and come talk to me if you need further study strategies. I will be happy to brainstorm ideas to help you maximise your study strategies and improve your mathematical understanding. However, I will NOT offer any additional extra credit at the end of the semester or any other way for you to improve your grade at that time. No exceptions. Please respect this and do not ask for special favours or extra credit when you realise you do not like your grade. Most likely, I just will not respond to such emails or questions in person. Your need to get into a certain program, or needing a specific grade for your work or scholarship or not wanting to upset whomever is paying for your college are all your own personal dilemmas that are truly independent from how I assign grades. The only way to "better your grade" at the end of the semester is to retrieve your final exam, compare it to the solutions, and see if you have any grading appeals. If you do have grading appeals on the final exam, please turn it in to me. I an happy to look over those and possibly give points back, if it is warranted. Other than that, I consider it disrespectful of me and my time for you to ask for a higher grade than you earned, or for some possible way to increase your grade, at that point.

Disclaimer

This syllabus is meant to serve as an outline and guide for our course. I reserve the right to change the policies stated in this syllabus if necessary. I may also modify the course schedule to accommodate the needs of our class. Any changes will be announced in class and posted on Canvas.

Course Roadmap Week-by-Week

Week	Dates	Sections	Material
1	8/24 - 8/28	1.1, 1.2, 1.3	Differential Equations Mathematical Models Integral as General and Particular Solutions Slope Fields
2	8/31 - 9/4	1.4, 1.5, 2.1, 2.2	Seperable Differential Equations Linear Differential Equations Circuits, Mixture Models, and Population Models Equilibrium Solutions and Stability
3	9/8 - 9/11	2.3, 2.4, 2.5, 2.6	**No class Monday** Acceleration-Velocity Models Numerical Solutions
4	9/14 - 9/18	3.1, 3.2, 3.3	Linear Systems Gaussian Elimination Reduced Row Echelon Form
5	9/21 - 9/25	3.4, 3.5, 3.6	Matrix Operations Matrix inverses Determinants
6	9/28 - 10/2	4.1, 4.2	Vector Spaces Linear Combinations in $\mathbb{R}^n$ Subspaces **Midterm 1 on Friday**
7	10/5 - 10/9	4.3, 4.4	Span and Linear Independence Subspaces, Bases, and Dimension
8	10/12 - 10/16	5.1, 5.2, 5.3	2nd-order Linear Differential Equations General Solutions Superposition, Homogeneity, and Constant Coefficients
9	10/19 - 1/23	5.4, 5.5, 5.6	Mechanical Vibrations and Pendulum Model Particular Solutions to Non-Homogeneous Problems Forcing and Resonance
10	10/26 - 10/30	10.1, 10.2, 10.3	Laplace Transforms Solving IVPs with Transforms Partial Fractions and Translations
11	11/2 - 11/6	10.4, 10.5	Unit Step Functions Convolutions **Midterm 2 on Friday**
12	11/9 - 11/13	6.1, 6.2	Eigenvalues and Eigenvectors Diagonalisation
13	11/16 - 11/20	7.1, 7.2	1st-order Systems of ODEs Matrix Systems
14	11/23 - 11/25	7.3, 7.4	Eigenanalysis Phase Portraits of Linear Systems Spring Systems and Forced Undamped Systems **No class on Thursday and Friday**
15	11/30 - 12/3	7.5	Second Order Systems Mechanical Applications Practical Resonance