

MATH 2250/225-001 Differential Equations and Linear Algebra, Fall 2021

Class Meetings: Lecture: M, T, W, F / 07:30 AM-08:20 AM Monday, August 23rd ending on Thursday, December 9th

Classroom: CSC 208

Holidays: Sep 6th M (Labor Day), Oct 10th-17th (Fall Break), Nov 25th-28th (Thanksgiving Holiday)

Other Important Dates: See <https://registrar.utah.edu/academic-calendars/fall2021.php>

- August 27th (F): Last day to add without a permission code, Last day to wait list
- Sep 3rd (F): Last Day to Add,Drop(Delete), Elect CR/NC, or Audit Classes
- Oct 22nd (F): Last Day to Withdraw from classes
- Dec 3rd (F): Last day to reverse CR/NC option

Instructor: Dr. Sung Chan Choi

Email: choi@math.utah.edu

Office Hours: 8:30-9:30am on M and W

These office hour will be held in person, in my office JWB 113. If you would like to meet with me over zoom, please let me know and we can schedule a time that works for you and me.

Textbook: *Differential Equations and Linear Algebra*, by H. C. Edwards and D. E. Penney and D. Calvis, D (4th edition)

Class lectures will be heavily based on textbook material. The textbook provides additional details and alternative interpretations that cannot be covered in class due to time constraints. Homework will be assigned from problems in the textbook.

An e-text version will be offered on “bookshelf” within Canvas.

Course Information: Math 2250 is a 4 credit course.

Prerequisite Information: “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)).

Course Description: This is a hybrid course which teaches the allied subjects of linear algebra and differential equations. These topics underpin the mathematics required for most students in the Colleges of Science, Engineering, Mines & Earth Science.

Summary of course logistics: Lectures are MTWF, and lab sections are on Thursdays.

Learning objectives: Upon successful completion of this course, a student should be able to:

- model various physical phenomena via differential equations
- understand and apply a high-level taxonomy of differential equations
- compute explicit analytic solutions to some types of differential equations
- provide physical interpretations of mathematical solutions to differential equations
- explain basic concepts in linear algebra and matrix analysis
- apply linear algebra concepts to the solution to differential equations

Canvas: Canvas will be used for posting course announcements, homework assignments, grades, files and any relevant supplementary material. You are also welcome to make use of the Canvas discussion board to discuss course problems or topics. You can access the Canvas page through CIS or by logging in at utah.instructure.com. Students should check the Canvas page regularly for course information and resources. Email notifications and correspondence will be sent to the student's UMail address ([u-number]@utah.edu); this email account must be checked regularly.

Grading: The following are the grade components and the percentage each contributes to a student's final grade:

- **Weekly Homework Assignments (10%)**- 50% of each homework grade will be awarded based on completeness of the assignment, and 50% will be awarded based on correctness for a random subset of problems. Late homework is, in general, not accepted. You will submit homework on the assigned day by 11:59pm.
- **Daily Quizzes (20%)**- The quizzes are given 8 minutes before the end of every class.
 - The quizzes are given in every class.
 - Quiz problems will be based on the previous class. For example, August 25's quiz will be made the concepts learned on August 23's lecture.
 - Those who are late more than 10 minutes or absent from the class will not be given.
 - No makeup quiz will be given if you don't have a document to verify your reasonable absence, for example sickness. **8 lowest** scores will be dropped.
- **Labs (15%)** - Every Thursday a Teaching Assistant- (TA) directed lab section will be held. These lab sections will have smaller class sizes, consisting of working on lab worksheet-reports. The lab worksheet-reports will tend to cover longer, more in-depth problems than that found in homeworks 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. Completion of worksheet-reports will require work outside of the lab hour. The lab work serves the 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, operationalization of the question into a series of executable methods, and interpretation and communication of results.
- **Two Midterm Exams (30%, 15% each)**
 - Students will have two in-class exams, 60 minutes in length, which will make up a total of 30% of your course grade.
 - The dates of the exams are **Monday October 1st and Friday November 12th**.
 - Make-up midterms will **not** be offered unless the student notifies me before the day of the exam that they will be unable to attend and provides verifiable evidence of significant illness, serious family crisis, etc. The dates for these exams are fixed, and will be during normal class time in our normal classroom.
- **Final Exam (25%)**- A two-hour comprehensive exam will be given. Our final exam is scheduled for **Thursday, December 16, 2021 8:00-10:00 am**.
- **Important note:**
 - **Students with university excused absences (band, debate, student government, intercollegiate athletics) should make alternate arrangements with me as soon as possible if the absence interferes with any course components.**

- You are NOT allowed to seek help from others, including online resources such as Chegg or Stack Exchange during quizzes and exams. Soliciting help from such sites will be considered as academic misconduct and will be dealt with accordingly.
- It is the student’s responsibility to ensure the accuracy of all recorded homework, quizzes, online assignments, and exam grades. Also you should keep as record all your graded assignments. If you see any error in your grades on Canvas, reach out to the instructor as soon as possible, or at the latest within two weeks from when the assignment was returned.

Grading Scale: Final course letter grades will be determined as follows:

[93, 100]	A	[73, 77)	C
[90, 93)	A-	[70, 73)	C-
[87, 90)	B+	[67, 70)	D+
[83, 87)	B	[63, 67)	D
[80, 83)	B-	[60, 63)	D-
[77, 80)	C+	[0, 60)	E

Additional Resources

- **Free Online Tutoring** - See <http://www.math.utah.edu/undergraduate/mathcenter.php>

Calculators: Calculators will **not be allowed on quizzes and exams**. They may be used on homework.

COVID-19 Fall 2021 Statement: University leadership has urged all faculty, students, and staff to model the **vaccination, testing, and masking behaviors** we want to see in our campus community.

These include:

1. Vaccination
2. Masking indoors
3. If unvaccinated, getting weekly asymptomatic coronavirus testing

- **Vaccination**

- Get a COVID-19 vaccination if you have not already done so. Vaccination is proving highly effective in preventing severe COVID-19 symptoms, hospitalization and death from coronavirus. Vaccination is the single best way to stop this COVID resurgence in its tracks.
- Many in the campus community already have gotten vaccinated:
 - * More than 80% of U. employees
 - * Over 70% of U. students
- Visit <http://mychart.med.utah.edu/>, <http://alert.utah.edu/covid/>, or <http://vaccines.gov/> to schedule your vaccination.

- **Masking**

- While masks are no longer required outside of Health Sciences facilities, UTA buses and campus shuttles, CDC guidelines now call for everyone to wear face masks indoors.
 - * Check the CDC website periodically for masking updates
www.cdc.gov/coronavirus/2019-ncov/vaccines/fully-vaccinated-guidance.html
 - * Treat masks like seasonal clothing (i.e. during community surges in COVID transmission, masks are strongly encouraged indoors and in close groups outside).

- **Testing**

- If you are not yet vaccinated, get weekly asymptomatic coronavirus tests. This is a helpful way to protect yourself and those around you because asymptomatic individuals can unknowingly spread the coronavirus to others.
 - * Asymptomatic testing centers are open and convenient:
 - online scheduling
 - Saliva test (no nasal swabs)
 - Free to all students returning to campus (required for students in University housing)
 - Results often within 24 hours
 - Visit <http://alert.utah.edu/covid/>
- Remember: Students must self-report if they test positive for COVID-19 via this website: <https://coronavirus.utah.edu/>.

Student Responsibilities: All students are expected to maintain professional behavior in the classroom setting, according to the Student Code, spelled out in the Student Handbook. Students have specific rights in the classroom as detailed in Article III of the Code. The Code also specifies proscribed conduct (Article XI) that involves cheating on tests, plagiarism, and/or collusion, as well as fraud, theft, etc. Students should read the Code carefully and know they are responsible for the content. According to Faculty Rules and Regulations, it is the faculty responsibility to enforce responsible classroom behaviors, and I will do so, beginning with verbal warnings and progressing to dismissal from and class and a failing grade. Students have the right to appeal such action to the Student Behavior Committee. <http://regulations.utah.edu/academics/6-400.php>

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, veterans status or genetic information. 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 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 the police, contact the Department of Public Safety, 801-585-2677(COPS).

Student Names and Personal Pronouns: Class rosters are provided to the instructor with the students legal name as well as Preferred first name (if previously entered by you in the Student Profile section of your CIS account). While CIS refers to this as merely a preference, I will honor you by referring to you with the name and pronoun that feels best for you in class, on papers, exams, group projects, 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. If you need assistance getting your preferred name on your UIDcard, please visit the LGBT Resource Center Room 409 in the Olpin Union Building, or email bpeacock@sa.utah.edu to schedule a time to drop by. The LGBT Resource Center hours are M-F 8am-5pm, and 8am-6pm on Tuesdays.

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 www.wellness.utah.edu or 801-581-7776.

Safety Statement: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/>.

Disclaimer: This syllabus is meant to serve as an outline and guide for our course. Please note that I may modify it with reasonable notice to you. 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.