

Course Information

Course Number:	Math 308H
Course Title:	Differential Equations, HNR
Time:	Section 201: TR 11:10-12:25
Location:	Blocker 161
Credit Hours:	3

Instructor Details

Instructor:	Igor Zelenko
Office:	Blocker 601J
E-Mail:	Please use the Inbox tool in Canvas to write to me about Math 308H. Other correspondence can be directed to zelenko@math.tamu.edu
Office Hours:	<i>Monday 11am-12pm, Friday 11am-noon, and by appointment.</i> During the Fall 2021 semester, I will hold office hours via Zoom. The ZOOM link will be available in Canvas.
Course Webpage:	Canvas(https://canvas.tamu.edu/courses/96024)

Course Description

This is a course in differential equations. Topics include linear ordinary differential equations and systems of linear differential equations, second order linear equations, solutions using Laplace transforms, solutions by power series, and elements of nonlinear systems (stability near equilibrium).

Course Prerequisites

Grade C or higher in [MATH 221](#), [MATH 251](#), or [MATH 253](#), or concurrent enrollment; knowledge of computer algebra systems.

Course Learning Outcomes

Upon successful completion of this course, students will know how to:

- Use ordinary differential equations to model real world processes (mechanical, electrical, biological, etc).
- Solve many types of (systems of) differential equations explicitly or approximately by hands and/or using computer algebra system.
- Manipulate with matrices, find their eigenvalues and eigenvectors, the matrix exponentials and why all this is important in real life.
- Analyze qualitative behavior of solutions of nonlinear differential equations, e.g., the stability properties of equilibria, etc., based on linearization principle and the tools of Linear Algebra from the previous item.

Textbook and Resource Materials

TEXTBOOK: Textbook: Elementary Differential Equations and Boundary Value Problems by Boyce, DiPrima, and Meade, any edition starting from edition 7. The latest edition is edition 11 but since the homework problems will be similar to the ones in the textbook but not from the textbook, the earlier version can be used as well.

The primary source for study is the class notes that will be posted after class. We will cover much of chapters 1-3, 5-7 and some of chapter 8 and 9 from the textbook. The textbook is used as the additional source for review the material. The homework problems will be similar to the ones in the textbook but not from the textbook. The lecture notes with spaces will be posted prior every class and we will complete them during every classes. Please make sure either to print these notes and bring them to every class or to bring an electronic device on which you can write the notes

HOMEWORK ASSIGNMENTS will be usually given every Tuesday for submission next Tuesday through Canvas. Each assignment will consist of 5-6 problems (similar to the problems in textbook but not from the textbook) and sometimes will include bonus problems. Homework must be turned in electronically on time. For full credit on the homework, you must show all work and justify your answers.

COMPUTER ASSIGNMENTS USING PYTHON

In several occasions (no more than 3 times throughout the semester) the homework assignments will included 1-2 problems that require the **use of Python**. The following links will be useful for this type of assignments:

<http://calclab.math.tamu.edu/Python/m308/PythonHelp308.html>

<https://www.math.tamu.edu/~berko/teaching/common/math308/python/>

TECHNOLOGY: You will need to scan and upload some of your written work as a PDF (this can be achieved with a cell phone or other technology). Course notes and other materials will be posted on Canvas. If the university moves to on-line instruction, then exams will be proctored on-line over Zoom. To do this, the following technical requirements are needed:

- Appropriate hardware (laptop or desktop computer, a second device such as a mobile phone, high-speed internet connection)
- Appropriate software (PDF reader, Zoom on phone and computer, the latest update on an internet browser-Chrome or Firefox are recommended)

TEXAS A&M STUDENT ID: Bring your student ID to each class/exam. If you have a question about your grade, please bring your ID when we talk.

Grading Policy

- Your grade will be determined by homework assignments (25%), **two** in-class midterm exams 25% each and the final cumulative exam (25%). Due to FERPA privacy issues, I cannot

discuss grades over email or phone. If you have a question about your grade, please schedule a one-on-one Zoom meeting with me.

- **Tentative midterm exam** dates are **October 7** and **November 11**.
- **The final exam is scheduled for December 10, 3-5 pm**
- **Calculators** will NOT be allowed on the exams and Final. Remember *to bring your ID with you for all exams!*

- **Grading Scale**

Range	Grade
[90, 100]	A
[80, 90)	B
[70, 80)	C
[60, 70)	D
[0,60)	F

Late Work

Late work will NOT be accepted unless you have a university approved reason and contact me within two business days of the missed assignment.

Appeal Policy

Students have one week upon the return of individual grades to notify the instructor of any inaccuracies in their graded work. Students should bring all grade disputes to their instructor in an individual Zoom meeting. Due to FERPA privacy issues, grade disputes will not be discussed over email or in the classroom.

Working with Friends

Working together on homework is fine and encouraged, but each of you **must write up your own solutions in your own words, notation and/or symbols and write the names of your collaborators at the top left corner of your homework**. Copying a solution from a source and referencing the source is still considered a violation of academic integrity because you are submitting work for a grade that is not your own work. It is NOT permissible to discuss any aspect of any quiz, test or examination until ALL students have completed it. The penalties for violating this policy will range from an F on an assignment or test, to failing in the course.

Attendance

Attendance is essential to complete this course successfully.

Excused Absences: University student rules concerning excused and unexcused absences, as well as makeups, can be found at <http://student-rules.tamu.edu/rule07>. Make-up exams and quizzes or late homework, writing assignments will NOT be allowed unless a University approved reason is given to me in writing. Notification before the absence is required when possible. Otherwise (e.g., accident, or emergency), you must notify me within two business days of the missed exam, quiz, or assignment to arrange a makeup.

Make-Up Policies

- **Makeups:** *Exam makeups* will only be allowed due to excused absences and the makeup must be taken as soon as possible after the missed exam. You will need to schedule to make up your exam within 3 business days of the originally scheduled time to allow for grades to be returned in a timely manner. If you know ahead of time you will be absent during an exam, you must notify me in advance. The lowest two quiz scores will be dropped at the end of the semester. That is why *there are generally no make-ups for quizzes, only for exams.*

Tentative Course Schedule is published on Canvas or on <https://www.math.tamu.edu/~zelenko/F21M308sch.pdf>

Other Important Dates: September 3 (last day to add or drop a course), Nov 24 (Reading Day), November 25&26 (no class-- Thanksgiving), November 19 (Q-drop).

Technology Support As much of our learning experience relies on technology, many students can get overwhelmed when something goes wrong, or things get overwhelming. If you're looking for a curation of online learning resources, consider checking out <https://keeplearning.tamu.edu/>. If your need is specific to a course-related technology issue, consider seeking help from the 24/7 TAMU IT Help Desk. <https://it.tamu.edu/help/>.

Learning Support

- **The University Writing Center (UWC)** is a resource to help you develop and refine the communication skills vital to success in college and beyond. Currently, you can choose to work with a trained UWC peer consultant via web conference or email. You can schedule an appointment to discuss any kind of writing project. Their consultants can work with you at any stage of your process. To schedule an appointment or to view their handouts, videos, or interactive learning modules, visit <https://writingcenter.tamu.edu/>.
- **Math Learning Center (MLC)** offers various forms of support for Math 300, both online and face-to-face, including drop-in Help Sessions, Tutoring by Appointment, Week-in-Review sessions, and other activities. Additionally, the MLC hosts an archive of Supplemental Material, such as Python tutorial videos and recorded review sessions

Zoom Etiquette

OFFICE HOUR ATTENDEES

When joining office hours via ZOOM, please join with your audio off. Everyone attending office hours will be joining one room, so if you would like to ask a question during office hours, please "raise your hand" and wait to be called on. If you need to speak to me privately, and have not made an individual appointment with me, please let me know through a private CHAT message and I will move you to a breakout room where we can talk one-on-one.

Class Announcements

Class announcements will be posted in [Canvas](#) and sent to your university e-mail account (Make sure to check your notification preferences to control how the course updates are sent.) It is your responsibility to check your account and the course page and get familiar with the announcements.

University Policies

Attendance Policy

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments.

Please refer to Student Rule 7 in its entirety for information about excused absences, including definitions, and related documentation and timelines.

Makeup Work Policy

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in Student Rule 7, or other reason deemed appropriate by the instructor.

Please refer to Student Rule 7 in its entirety for information about makeup work, including definitions, and related documentation and timelines.

Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor" (Student Rule 7, Section 7.4.1).

"The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence" (Student Rule 7, Section 7.4.2).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (See Student Rule 24.)

Academic Integrity Statement and Policy

"An Aggie does not lie, cheat or steal, or tolerate those who do."

"Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one's work, should the

instructor request it, may be sufficient grounds to initiate an academic misconduct case” (Section 20.1.2.3, Student Rule 20).

You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at aggiehonor.tamu.edu.

Americans with Disabilities Act (ADA) Policy

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact Disability Resources in the Student Services Building or at (979) 845-1637 or visit disability.tamu.edu. Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible.

Title IX and Statement on Limits to Confidentiality

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.

With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see University Rule 08.01.01.M1):

- The incident is reasonably believed to be discrimination or harassment.
- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, you will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University’s goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with Counseling and Psychological Services (CAPS).

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University’s Title IX webpage.

Statement on Mental Health and Wellness

Texas A&M University recognizes that mental health and wellness are critical factors that influence a student's academic success and overall wellbeing. Students are encouraged to engage in proper self-care by utilizing the resources and services available from Counseling & Psychological Services (CAPS). Students who need someone to talk to can call the TAMU Helpline (979-845-2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at suicidepreventionlifeline.org.

Classroom Facial Mask

To help protect Aggieland and stop the spread of COVID-19, Texas A&M University urges students to be vaccinated and to wear masks in classrooms and all other academic facilities on campus, including labs. Doing so exemplifies the Aggie Core Values of respect, leadership, integrity, and selfless service by putting community concerns above individual preferences. COVID-19 vaccines and masking — regardless of vaccination status — have been shown to be safe and effective at reducing spread to others, infection, hospitalization, and death.