

Math 2326: Differential Equations (Asynchronous ON LINE class)
CRN: 26710
Spring 2023
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Prerequisite Courses

Calculus I and II. In particular, students should be familiar with the quadratic equation, techniques of integration and the method of partial fractions.

COURSE DESCRIPTION, OBJECTIVES and EXPECTED LEARNING OUTCOMES

The main objectives of this course include showing the students how differential equations appear in real life and physical phenomena, and teach them the main three methods, namely analytic, geometric and numerical methods, for studying differential equations.

By the end of the course, the students should be able to make mathematical models involving differential equations for problems encountered in engineering, social and physical sciences, and to solve them by using one or a combination of the methods mentioned above. They should therefore be prepared to successfully continue their studies towards more advanced and specialized courses in their field.

REQUIRED MATERIALS

P. Blanchard, R. L. Devaney and G. R. Hall, Differential Equations, Boston, Fourth Edition, 2012.
Besides Amazon and other online vendors, the UTEP bookstore has this book.

Graphing calculator with capabilities equivalent to at least the TI-85.

You will also need regular access to a computer, stable, consistent internet, Blackboard, and your UTEP email account.

The following link also contains interesting videos that may help you in better understanding of the course material:

<https://ocw.mit.edu/resources/res-18-009-learn-differential-equations-up-close-with-gilbert-strang-and-cleve-moler-fall-2015/differential-equations-and-linear-algebra/>

Although this is an Asynchronous online class, I will hold office hours in my office in Bell Hall 327 On Mondays and Wednesdays, from 3:00 to 4:00 PM for students who may have questions about the course material, HW problems, or any other problems with the course. Students who need more extensive tutoring, are strongly advised to contact the Math Tutoring Center (MaRCS) in the library.

COURSE ASSIGNMENTS AND GRADING

Assignments for this course consist of Homework (HW) and a total of 17 quizzes on almost every section of the book. The first quiz #0 will be a syllabus quiz, on the understanding of your syllabus. Therefore, please read your syllabus very carefully before taking this quiz. HW will not be graded and is for your own understanding of the course material. However, it is strongly recommended that you diligently work all the HW problems, as your quiz problems will either be the same or similar to your HW problems. All quizzes are open book, and they are available on the appropriate dates specified in your course calendar on Blackboard, from 12:00 AM-11:59 PM (MST) on the day of the quiz posted in the weekly calendar for you to open. Once you open the quiz, you have exactly one hour to complete it and post the pdf file of your solution on Blackboard.

If not, the corresponding grade will be counted as zero. No exception or excuse to this rule will be accepted.

Important Note: E-mail submissions are not accepted. Any issue with Blackboard should be reported and resolved through the UTEP Technology Support. This is completely out of the instructor's hands.

Please make sure you read very carefully the instructions for taking quizzes in Blackboard, as no exceptions or excuses will be accepted to those rules.

The list of the HW problems appears below after the grading policy.

Please make sure you understand that when posting your solution, the most important things are the details and your explanations on how you get your solution to the problem and not just the answer to the problem.

Grading Policy:

The usual grading scale will be used for this course (90 or above corresponds to an A, 80 to 89 is a B, 70 to 79 is a C, 60 to 69 is a D, below 60 is an F).

Each quiz has a weight of 100 points, and your final grade will be the average of all your 17 quizzes.

List of the Homework Problems:

Section Number	Problem Numbers
1.1	3-5, 6,7, 12, 13, 14, 17, 18, 21-23.
1.2	2, 3, 6, 9, 10, 11, 19, 20, 22, 23, 30, 32-35, 43.
1.3	2, 5, 7-10, 11-18.
1.4	1, 4, 7, 8, 13, 15, 16.
1.5	1, 3, 5-8, 9, 11-17
1.6	3, 4, 7, 8, 11, 12, 14, 17, 21, 22, 27, 28, 31, 32, 34-37, 41, 43.
1.7	1, 2, 3, 18, 22, 23.
1.8	29, 30, 31
1.9	1, 2, 4, 9, 13, 14, 15-20
2.1	1-6, 8, 16, 19, 20, 22, 23
2.2	2, 5, 7, 9, 11, 12, 16-18, 20, 21, 23-26
2.4	1-4, 5-12
2.5	1, 3, 6.
2.6	3-5, 8, 9, 11.
3.1	6, 7, 9, 14, 15, 16, 17, 24, 27, 30, 31, 32-35
3.2	2, 4, 5, 8, 10, 13, 14, 15, 16-19, 22, 24, 25
3.3	2, 5, 8, 11, 12, 15, 16, 19, 20, 21, 27
3.4	1, 3, 6, 8, 9, 12, 14, 15, 16-18, 23-26
3.5	1, 3, 4, 5, 7, 8, 9, 11-13, 17, 19, 20, 22, 23
3.6	3, 5, 6, 8, 10, 12, 13, 16, 19-21, 24, 26, 28, 32
5.1	1, 3, 4-7, 15, 17, 18, 20
5.2	1, 3-5, 7, 8, 10, 12, 14
6.1	1, 4, 5-7, 10, 12, 14, 15, 17, 18, 20, 24, 25
6.2	1, 3, 7, 8, 11, 13, 14-16, 17, 18, 19(a), 20(a)
6.3	1, 4, 5, 6, 8, 9, 11, 12, 17, 18, 27, 29, 30, 34, 35

ATTENDANCE POLICY

Because this is an online course, attendance is determined by class participation online. Participation is determined by completion of the following activities:

- Reading/Viewing all course materials to ensure understanding of assignment requirements
- Participating in engaging discussion with your peers on the Discussion Boards (grading rubric provided in the “grading information” area of each forum)
- Completing all Module Activities (HW assignments, quizzes, comprehensive final exam)
- Completing all Major Assignments

To preserve a student’s GPA, he/she WILL be dropped from the course for failure to turn in two or more quiz assignments.

TECHNOLOGY REQUIREMENTS

Course content is delivered via the Internet through the Blackboard learning management system (LMS). Ensure your UTEP e-mail account is working and that you have access to the Web and a stable web browser. Mozilla Firefox and Google Chrome are the most supported browsers for Blackboard; other browsers may cause complications with the LMS. When having technical difficulties, update your browser, clear your cache, or try switching to another browser.

You will need to have or have access to a computer/laptop, scanner, a webcam, and a microphone. You will need to download or update the following software: Microsoft Office, Adobe, Flashplayer, Windows Media Player, QuickTime, and Java. Check that your computer hardware and software are up-to-date and able to access all parts of the course.

If you encounter technical difficulties beyond your scope of troubleshooting, please contact the [Help Desk](#) as they are trained specifically in assisting with technological needs of students.

NETIQUETTE

- Always consider audience. Remember that members of the class and the instructor will be reading any postings.
- Respect and courtesy must be provided to classmates and to instructor at all times. No harassment or inappropriate postings will be tolerated.
- When reacting to someone else's message, address the ideas, not the person. Post only what anyone would comfortably state in a F2F situation.
- Blackboard is not a public internet venue; all postings to it should be considered private and confidential. Whatever is posted on in these online spaces is intended for classmates and professor only. Please do not copy documents and paste them to a publicly accessible website, blog, or other space. If students wish to do so, they have the ethical obligation to first request the permission of the writer(s).

LATE WORK POLICY

All quizzes are open book, and they are available from 12:00 AM-11:59 PM (MST) on the day of the quiz posted in the weekly calendar for you to open.

Once you open the quiz, you have exactly one hour to complete it and post the pdf file of your solution on Blackboard.

If not, the corresponding grade will be counted as zero.

No exception or excuse to this rule will be accepted.

DROP POLICY

To drop this class, please contact the [Registrar's Office](#) to initiate the drop process. If you cannot complete this course for whatever reason, please contact me. If you do not, you are at risk of receiving an F for the course.

Any student not respecting or following the rules of this syllabus may be dropped from the class list with an "F".

ACCOMMODATIONS POLICY

The University is committed to providing reasonable accommodations and auxiliary services to students, staff, faculty, job applicants, applicants for admissions, and other beneficiaries of University programs, services and activities with documented disabilities in order to provide them with equal opportunities to participate in programs, services, and activities in compliance with sections 503 and 504 of the Rehabilitation Act of 1973, as amended, and the Americans with Disabilities Act (ADA) of 1990 and the Americans with Disabilities Act Amendments Act (ADAAA) of 2008. Reasonable accommodations will

be made unless it is determined that doing so would cause undue hardship on the University. Students requesting an accommodation based on a disability must register with the [UTEP Center for Accommodations and Support Services](#).

SCHOLASTIC INTEGRITY

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as ones' own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the [Office of Student Conduct and Conflict Resolution \(OSCCR\)](#) for possible disciplinary action. To learn more [HOOP: Student Conduct and Discipline](#).

STUDENT RESOURCES

UTEP provides a variety of student services and support:

- [UTEP Library](#): Access a wide range of resources including online, full-text access to thousands of journals and eBooks plus reference service and librarian assistance for enrolled students.
- [Help Desk](#): Students experiencing technological challenges (email, Blackboard, software, etc.) can submit a ticket to the UTEP Helpdesk for assistance. Contact the Helpdesk via phone, email, chat, website, or in person if on campus.
- [University Writing Center \(UWC\)](#): Submit papers here for assistance with writing style and formatting, ask a tutor for help and explore other writing resources.
- [Math Tutoring Center \(MaRCS\)](#): Ask a tutor for help and explore other available math resources.
- [History Tutoring Center \(HTC\)](#): Receive assistance with writing history papers, get help from a tutor and explore other history resources.
- [Military Student Success Center](#): UTEP welcomes military-affiliated students to its degree programs, and the Military Student Success Center and its dedicated staff (many of whom are veterans and students themselves) are here to help personnel in any branch of service to reach their educational goals.
- [RefWorks](#): A bibliographic citation tool; check out the RefWorks tutorial and Fact Sheet and Quick-Start Guide.