

*The simplicity of nature is not to be measured by that of our conceptions.
Infinitely varied in its effects, nature is simple only in its causes,
and its economy consists in producing a great number of phenomena,
often very complicated, by means of a small number of general laws.*

[Pierre-Simon Laplace \(1749-1827\)](#)

- **Time and Place.** MW 13:30-14:50 in TWH 313.
- **Instructor.** Helmut Knaust, Bell Hall 219, hknaust@utep.edu, 747-7002
- **Office Hours.** M 15:00-16:00, TR 16:30-17:30, or by appointment.
- **Other Sources of Help.** Visit the [MaRCS Tutoring Center](#) in the Library.
- **Textbook.** Paul Blanchard, Robert L. Devaney, Glen R. Hall. *Differential Equations*. [Cengage Learning, 4th edition](#). The parts of the textbook covered in class are intended to be read in advance.
- **Prerequisites.** I will assume that you have a thorough knowledge of the material covered in your Precalculus and your first two Calculus courses. In particular, it is essential that you are comfortable with techniques of integration and the method of partial fractions.
- **Course Contents.** The course will cover the following material:
 - Chapter 1.1-1.9 (4 weeks)
 - Chapter 2.1-2.6 (2.5 weeks)
 - Chapter 3.1-3.7 (4 weeks)
 - Chapter 5.1-5.2 (1.5 weeks)
 - Chapter 6.1-6.4 incl. selected topics from Chapter 4 (2.5 weeks)
- **Course Objectives.** During the course you should expect (and I will expect) that you make considerable progress in the following areas:
 1. Apply standard techniques to analyze and solve ordinary differential equations: using analytical, numerical and qualitative methods; using the method of the Laplace transform.

2. Be able to model with differential equations and interpret the results of their mathematical analysis.
 3. Understand the fundamental difference between linear and non-linear differential equations.
- **Homework.** I will regularly assign homework. Your homework will not be graded. Homework assignments will also include reading assignments.
 - **Quizzes.** There will be unannounced quizzes on a regular basis. Quiz problems will be identical to previously assigned homework problems. The quizzes will contribute 10% to your grade.
 - **Tests.** Exams will be given on the following Wednesdays: **February 18, March 25, and April 22.** Each exam counts 20% of your grade.
 - **Make-up Exams.** Make-up tests will only be given under extraordinary circumstances, and only if you notify the instructor **prior** to the exam date. There will be no make-up quizzes. Your worst quiz grade will be dropped.
 - **Final exam.** The final on **Wednesday, May 13, 16:00-18:45** is mandatory and comprehensive. It counts 30% of your grade.
 - **Grades.** Your grade will be based on the percentage of the total points that you earn during the semester. You need at least 90% of the points to earn an A, at least 80% for a B, at least 70% for a C, and at least 60 % for a D.
 - **Calculators.** You may use a **non-graphing** calculator (not a cell phone, etc.) during tests and the final. If you have doubts about whether your calculator qualifies, ask me **before** the first test.
 - **Mathematica.** I will show in class and make available a few *Mathematica* notebooks. *Mathematica* is available at https://www.utep.edu/technologysupport/ServiceCatalog/SOFTWARE_PAGES/soft_mathematica.html. Choose "Mathematica Online", not "Mathematica"! I do not expect you to learn how to code, but if you want to learn more about writing *Mathematica* code, a nice but voluminous introduction to Mathematica can be found at [An Elementary Introduction to the Wolfram Language, by Stephen Wolfram](#).
 - **Time Requirement.** I expect that you spend an absolute minimum of six hours a week outside of class on reading the textbook, reviewing your class notes, completing homework assignments, and preparing for the next class. Not

surprisingly, it has been my experience that there is a strong correlation between class grade and study time.

- **Drop Policy.** The class schedule lists **Thursday, April 2**, as the last day to drop with an automatic "W". After the deadline, I can only drop you from the course with a grade of "F".
- **Attendance.** You are strongly encouraged to attend class every day. I expect you to arrive for class on time and to remain seated until the class is dismissed. Students with six or more absences (excused or unexcused) will be dropped from the course with a grade of "F".
- **Academic Integrity.** All students must abide by UTEP's academic integrity policies. For detailed information visit the [Office of Community Standards\(OCS\)](#) website. Academic Integrity is a commitment to fundamental values. Specifically, these values are defined as follows:
 - **Honesty:** advances the quest for truth and knowledge by requiring intellectual and personal honesty in learning, teaching, research, and service.
 - **Trust:** fosters a climate of mutual trust, encourages the free exchange of ideas, and enables all to reach their highest potential.
 - **Fairness:** establishes clear standards, practices, and procedures and expects fairness in the interaction of students, faculty, and administrators.
 - **Respect:** recognizes the participatory nature of the learning process and honors and respects a wide range of opinions and ideas.
 - **Responsibility:** upholds personal responsibility and depends upon action in the face of wrongdoing.
- **AI (Artificial Intelligence) Use.** Use of AI technologies or automated tools, particularly generative AI such as ChatGPT, Claude, Gemini, or DALL-E, is only allowed with approval from the instructor **before** being used. Without permission, you will be expected to think creatively and critically to complete assignments without aid from these tools. If given permission to use any of these tools, students must properly cite and give full credit to the program used upon submission of the assignment.

- **Military Service.** If you are a military student with the potential of being called to military service and/or training during the course of the semester, please contact the instructor as soon as possible.
- **Counseling Center.** You are encouraged to go to Counseling and Psychological Services (202 Union West) for personal assistance as you work through personal concerns. Confidential counseling services are offered in English or in Spanish. Phone: 747-5302.
- **Disabilities.** If you have a disability and need special accommodation, please contact the [Center for Accommodations and Support Services](#)(CASS). The Center aspires to provide students accommodations and support services to help them pursue their academic, graduation, and career goals. Phone 747-5148. E-mail: cass@utep.edu.

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