

**Math 3430–002, Introduction to Ordinary Differential Equations
Fall 2021**

Class meetings: MWF 12:40 p.m.-1:30 p.m. in CLRE 104

Instructor:

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<http://math.colorado.edu/~packer/math343021.html> and on Canvas

Office hours: MWF, 10:30 a.m.- 11:30 p.m, or by appointment via ZOOM.

Prerequisites: This course has as a prerequisite the courses Math 2400 Calculus 3, and Math 2130 or Math 2135 or APPM 3310 (min grade C). Similar to APPM 2360.

Text: “*Differential Equations and their Applications*”, Martin Braun, Fourth Edition, Springer Verlag, 1993. We will cover most of Chapters 1 through 4 of the text. An e-copy of this book is available for download through the university library system.

Course outline: This course is meant to familiarize the student with the elements of the theory of ordinary differential equations. It gives an elementary systematic introduction to first-order scalar differential equations, n th-order linear differential equations, and n -dimensional linear systems of first-order differential equations. Additional topics are chosen from equations with regular singular points, Laplace transforms, phase plane techniques, basic existence and uniqueness, and numerical solutions. If time permits we will cover more material from the textbook, depending on the interests of the students and the instructor. Other topics will be covered as time permits.

Assessment: Grades will be assigned based on performance in homework assignments (20%), participation-based Friday worksheets the last 10-15 minutes of class (5 %), two in-class midterms (22.5% each), and a final exam (30%).

Midterm and final exam dates:

Midterm 1: Wednesday, Sept. 29, 2021, 12:40 p.m.- 1:35 p.m.
Midterm 2: Wednesday, November 3, 12:40 p.m. - 1:35 p.m.
FINAL EXAM: Saturday, Dec. 11, 2021, 4:30 p.m. - 7 p.m.

THERE WILL BE NO MAKE-UP EXAMS, so make sure now that you have no conflicts!

Homework: 20% of your final grade will be come from your performance on homework, which will be assigned every week. Some, but not all, of the problems will be graded. Pdf files of your homework solutions should be uploaded to the class Canvas page by 11:59 p.m. on the homework due date. **Late homework will not be accepted**, but the two lowest grades of your homework assignments will be dropped. Friday worksheets are based on participation only, and you are allowed to miss up to 3 of them without penalty.

Friendly advice:

- **Attend class.** Things will often be said in class that are not covered in the text, and participating in classroom discussions is an important part of the learning process.
- **Read the book.** The text is intended to be read *in addition to* classroom lectures, and it contains many more details and examples than are possible to cover in lectures.
- **Do the homework.** Not only does it count for a significant portion of your grade, but this is one of the best ways to study and learn.
- **Come to my office hours in person or via ZOOM.** I am happy to help you with the homework, or discuss anything we've done in class.

Important Dates:

- **September 8, (Wed.):** Last day to drop a course without Tuition/Fee charges and without a "W" appearing on your transcript.
- **October 29 (Fri.):** Last day to drop a course via MyCUInfo; Last day for students to make arrangements with their instructor if they have three or more final exams on the same day or two final exams scheduled to meet at the same time.
- **December 9 (Thurs.):** Last day for students to withdraw from the university for Fall semester 2021. All withdrawals are assessed 100% of tuition and fees (\$0 refund) and W grades are posted to transcripts.

Accommodations for disabilities: If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the Disability Services website,

<http://disabilityservices.colorado.edu/> .

Contact Disability Services at 303-492-8671 or dsinfo@colorado.edu for further assistance. If you have a temporary medical condition, see Temporary Medical Conditions at <https://www.colorado.edu/disabilityservices/students/temporary-medical-conditions> on the Disability Services website.

Religious holidays: Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. In this class, assignments will either be rescheduled or dropped from grading calculations depending on the nature of the conflict. If you have a conflict, please advise me as soon as possible so that arrangements can be made. See full details at <https://www.colorado.edu/policies/observance-religious-holidays-absences-classes-or-exams>

Miscellaneous University Rules & Regulations:

- **Honor Code:** All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to the Honor Code. Violations of the policy may include: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access to academic materials, clicker fraud, submitting the same or similar work in more than one course without permission from all course instructors involved, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code (honor@colorado.edu); 303-492-5550). Students found responsible for violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code as well as academic sanctions from the faculty member. Additional information regarding the Honor Code academic integrity policy can be found at the Honor Code Office website at <https://www.colorado.edu/sccr/honor-code> .

- **Classroom behavior policy:**

Both students and faculty are responsible for maintaining an appropriate learning environment in all instructional settings, whether in person, remote or online. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. For more information, see the policies on classroom behavior at <http://www.colorado.edu/policies/classbehavior.html> and on the Student Code of Conduct at the website <https://www.colorado.edu/sccr/> .

- **Preferred Student Names and Pronouns:**

CU Boulder recognizes that students' legal information doesn't always align with how they identify. Students may update their preferred names and pronouns via the student portal; those preferred names and pronouns are listed on instructors' class rosters. In the absence of such updates, the name that appears on the class roster is the student's legal name.

- **Requirements for COVID-19** As a matter of public health and safety due to the pandemic, all members of the CU Boulder community and all visitors to campus must follow university, department and building requirements and all public health orders in place to reduce the risk of spreading infectious disease. Students who fail to adhere to these requirements will be asked to leave class, and students who do not leave class when asked or who refuse to comply with these requirements will be referred to Student Conduct and Conflict Resolution. For more information, see the policy on classroom behavior and the Student Code of Conduct. If you require accommodation because a disability prevents you from fulfilling these safety measures, please follow the steps in the Accommodation for Disabilities statement on this syllabus.

As of Aug. 13, 2021, CU Boulder has returned to requiring masks in classrooms and laboratories regardless of vaccination status. This requirement is a temporary precaution during the delta surge to supplement CU Boulders COVID-19 vaccine requirement. Exemptions include individuals who cannot medically tolerate a face covering, as well as those who are hearing-impaired or otherwise disabled or who are communicating with someone who is hearing-impaired or otherwise disabled and where the ability to see the mouth is essential to communication. If you qualify for a mask-related accommodation, please follow the steps in the Accommodation for Disabilities statement on this syllabus.

Students who have tested positive for COVID-19, have symptoms of COVID-19, or have had close contact with someone who has tested positive for or had symptoms of COVID-19 must

stay home. Because this class is taught in person, if you are quarantined, please get in touch with me if you must miss class, and I will inform you of the material being covered. If you become ill with COVID-19 please inform the CU Medical Services Public Health Office and follow CU Medical Services Public Health protocols.

Once a student discloses to me that they have tested positive for COVID-19 or are having symptoms of COVID-19 or have had close contact with someone who has tested positive for COVID-19, I will submit that information to the Medical Services Public Health Office for the purposes of contact tracing (contacttracing@colorado.edu and/or 303-492-2937), as required by CU Health policies and procedures.

- **Statement on Discrimination and Harassment:**

The University of Colorado Boulder (CU Boulder) is committed to fostering an inclusive and welcoming learning, working, and living environment. CU Boulder will not tolerate acts of sexual misconduct (harassment, exploitation, and assault), intimate partner violence (dating or domestic violence), stalking, or protected-class discrimination or harassment by members of our community. Individuals who believe they have been subject to misconduct or retaliatory actions for reporting a concern should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127 or cureport@colorado.edu. Information about the OIEC, university policies, anonymous reporting, and the campus resources can be found on the OIEC website,

<http://www.colorado.edu/odece/>

Please know that faculty and instructors have a responsibility to inform OIEC when made aware of incidents of sexual misconduct, dating and domestic violence, stalking, discrimination, harassment and/or related retaliation, to ensure that individuals impacted receive information about options for reporting and support resources.