

## MATH 3230.A – Ordinary Differential Equations (3 cr) / Fall 2024

<b>Textbook:</b>	Elementary Differential Equations (by W. Kohler & L. Johnson), <u>2<sup>nd</sup></u> Ed.
<b>Class Meets:</b>	MWF: 3:30 – 4:20 pm (Lafayette L100)
<b>Instructor:</b>	Dr. Taras I. Lakoba, Innovation Hall, Room E436 656-2610, tlakoba@uvm.edu, <a href="https://tlakoba.w3.uvm.edu">https://tlakoba.w3.uvm.edu</a>
<b>Student Drop-in Hours:</b>	M: 4:40–5:40; W: 12:30–1:30; F: 11:20 - 12:20; and by appointment. See <a href="https://tlakoba.w3.uvm.edu/teaching_24F.html">https://tlakoba.w3.uvm.edu/teaching_24F.html</a> for more information.
<b>Important deadlines:</b>	See UVM Academic Calendar at <a href="https://www.uvm.edu/registrar/uvm-academic-calendar-2024-2025">https://www.uvm.edu/registrar/uvm-academic-calendar-2024-2025</a>

### Course webpage:

Brightspace or any other LMS will **not** be used. All course materials and information are/will be posted on:  
[https://tlakoba.w3.uvm.edu/24\\_fall/math\\_3230/index.html](https://tlakoba.w3.uvm.edu/24_fall/math_3230/index.html).

### Course contents:

Verbal description: First-order differential equations (DEs); Second-order DEs; First-order linear systems of DEs; Laplace transform. By Section: Chaps. 1 – 5.

### Homework:

Homework is posted on the [website listed above](#).

Homework for any given section is considered assigned on the day that section has been covered.

The purpose of the homework is to help you master the techniques covered in class. As such, **homework problems will be substantially based on examples and material presented in class. Therefore, you should study your notes before you attempt the homework, and mimic your solutions on the examples in the notes** and the indicated examples from the book. Please watch a 15-minute video on the course webpage explaining how I expect you to work on homework problems. See the instructor for help **as soon as** you find out that you are having difficulty with the homework.

Homework will *not* be graded. However, both quizzes and tests will be substantially based on the homework problems, and therefore you should do all of the assigned problems.

### Tests and Quizzes:

(a) There will be 2 (two) midterm tests during the semester. Their dates will be announced in class at least a week before each test. *See page 3 of this document for information related to their scheduling.* Make-up exams will be given to those students who have documented excused absence.

(b) The final exam will be on Monday, December 9, 4:30–7:15 pm in Lafayette L100.

(c) Quizzes, sometimes unannounced (see below), will be given **approximately** once a week. There will be 11( $\pm$ 1) quizzes in total. They will be based on the homework problems that have been assigned (see above) at least one day ago. You are encouraged to ask which section's homework will be covered on the next quiz.

The main purpose of the quizzes is to help you monitor how well you are doing in the course. If you receive a low grade on a quiz, it is a flag that you need to review the corresponding material. A **structured, 3-step process of such a review** is posted on the course website. If you receive a couple of low quiz grades in a row, see the instructor for help as soon as possible.

I will announce when the next quiz will be and what it will be on *only after someone asks me that in class*. No electronic announcements of quizzes will be made.

*Example:* I plan to give a quiz on October 1. If someone asks me in class on October 1 or during a previous class when the next quiz will be, I will answer: “On October 1”. If no one asks, I will still give a quiz on October 1. I will not answer questions about the next quiz's date and content if asked outside of class, unless that question has already been asked in class. This will be done to encourage your (i) initiative asking questions in class and (ii) regular attendance.

### Academic integrity:

You are expected to read and understand the UVM Academic Honesty policy, found at <http://www.uvm.edu/~uvmppg/ppg/student/acadintegrity.pdf>.

Please keep in mind that the purpose of all assignments is *not* to just have you solve a given problem. Rather, it is to assess your mastery of *the methods presented in class* and, therefore, to have you *solve the problem by one of those methods*. I reserve the right, at my sole discretion, to question any solution that, in my opinion, uses a method that was not presented or referred to in class. See the preamble to the document cited in the next paragraph.

Violations of academic integrity on *any assignment* will be dealt with as described in the link '**Sanctions for academic integrity violations**', found below this Syllabus. **See also** the rubric 'Prohibition of sharing course materials' in the Generic Syllabus (posted next to this one).

### Grading policy:

Midterm tests = 20% each; final exam = 30%; all quizzes combined = 30%. Extra credit may be earned as explained below.

**Note:** I do **NOT** drop your lowest grade. Thus, **ALL** the grades that you earn during the semester will contribute to your final grade, as detailed above.

### Grading scheme:

I do not curve exams and quizzes. Instead, when issuing final grades, I slightly adjust the grading brackets. This will work as follows. The threshold between **A-** and **A** will be set at  $X$ , where  $92.00 < X \leq 93.00$  will be adjusted based on my subjective criteria. The freedom of choosing this  $X$  *within the above range* is my equivalent of other instructors' curving exam grades.

Once a value of  $X$  is selected, letter grades will be put in correspondence with the following brackets for the numeric grade, which is computed as described in rubric Grading policy:

D-	$[X - 30 - 3.33, X - 30)$ ;	D	$[X - 30, X - 30 + 3.34)$ ;	D+	$[X - 30 + 3.34, X - 20 - 3.33)$ ;
C-	$[X - 20 - 3.33, X - 20)$ ;	C	$[X - 20, X - 20 + 3.34)$ ;	C+	$[X - 20 + 3.34, X - 10 - 3.33)$ ;
B-	$[X - 10 - 3.33, X - 10)$ ;	B	$[X - 10, X - 10 + 3.34)$ ;	B+	$[X - 10 + 3.34, X - 3.33)$ ;
A-	$[X - 3.33, X)$ ;	A	$[X, X + 5.00)$ ;	A+	$\geq X + 5.00$ .

Note that these brackets are *strict*. This means that if your grade doesn't make the next bracket even by 0.01, that is it — it doesn't make it. This is what brackets, and thresholds in general, are for.

### Extra credit:

Additional homework and projects, which will be considered an extra credit, may be assigned occasionally. **No penalty** will be given if you choose not to do these extra credit assignments. *Before you decide to do a particular extra credit assignment, please review more detailed instructions found on the course website.*

I reserve the right, at my sole discretion, to increase the final grade of any student by one level (e.g., from B- to B) for a demonstrated achievement, some examples of which are: active and constructive class participation, regular and active attendance of office hours with demonstrated transfer of knowledge gained thereby into the performance on assignments, excelling on the final exam, being the "most improved" student in terms of performance or attitude, etc. This provision, however, has been used *only in very rare and truly exceptional cases*.

### Learning objectives:

Upon successful completion of this course, the students will be able to recognize and independently work with the following concepts:

Solution of first-order linear differential equations (DEs); Solution of some classes of first-order nonlinear DEs; Solution of second-order linear differential equations with constant coefficients; Solutions of the harmonic oscillator problem (without and with damping, free and forced); Resonance; Solution of systems of first-order linear DEs with constant coefficients; Fundamental solution and (in)dependence of solutions of a system of DEs; Use of Laplace transform to solve linear DEs with constant coefficients.

## Information about midterm exams in MATH 3230

- Both midterms will be scheduled outside of class in the evening. The benefit of doing so is that this will save the class time and will allow a slower pace of the exposition of the material.

*Approximate* dates of the midterm exams are within a week from October 7 and November 11.

The procedure described below supersedes the above dates (which, again, are *only approximate*).

- Scheduling an outside exam will work as follows. About 8–10 days before the exam, I will send an email to the class with the following content:

Class:

The preparation sheet for Test N has been posted on the course webpage.

I would like to schedule Test N within one of the following time slots:

weekday 1, month/date, time block 1

weekday 2, month/date, time block 2.

This test will be for XX minutes.

Please let me know what times within the above two slots you can NOT make. I will NOT be able to accommodate preferences, only hard “cannot”s.

Please let me know that by **deadline time** this upcoming **weekday, date**.<sup>1</sup>

If you can make any time within the above slots, you do not need to respond.

If you can NOT make any part of the above time, I will still extend an offer of individual accommodation to you. HOWEVER, I will extend such offers only to those students who have responded by the above deadline of **date**. If you miss the deadline, you’ll have to take the test at the times which I will select based on responses of the other students.

The students with ACCESS accommodation are to schedule a time with the EPC

(<https://www.uvm.edu/academicsuccess/exam-proctoring-center>; [epc@uvm.edu](mailto:epc@uvm.edu); 802-656-5767).

Please make sure to let the EPC staff know that the base time for the exam is XX minutes.

- Soon after the deadline time mentioned above, I will select a time based on the responses that I have received. I will also send offers of individual accommodation as described above and will ask these respective students to respond within 24 hours. If I do not receive a response by then, the offer of individual accommodation WILL BE WITHDRAWN, and the non-responsive student will need to TAKE THE EXAM WITH THE OTHER STUDENTS.
- Information about the location of the exam will be sent soon after the exam is scheduled.

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<sup>1</sup>Usually, I will allow 3 days for a response.