

Math 261: Elementary Differential Equations, Fall 2020

Instructor: Kevin Milans (milans@math.wvu.edu)

Class Meetings: MWF 1:50pm-3:00pm via Zoom

Office Hours: M 4:00pm-5:00pm, Thurs 11:30am-12:30pm, and by appointment via Zoom

Webpage: <http://www.math.wvu.edu/~kgmilans/teaching/fa20/math261/>

Welcome: Welcome to section 012 of Math 261: Elementary Differential Equations. I have the highest hopes and expectations for your academic achievement this semester. It is my responsibility to ensure that you have all the tools you need to succeed, including quality instruction and timely feedback. It is your responsibility to use these tools to learn the course material. Hard work and dedication to the course are necessary components of success, but your course grade is ultimately based on how well you understand the course material as measured by quizzes and tests.

Mathematics can be a difficult subject to learn. It is inherently cumulative: the topic we learn today may (and often is) used throughout the semester and in later courses. Resolve now to learn the material thoroughly. The good news is that you don't have to learn alone. I am more than happy to answer your questions during office hours and via email. You are encouraged to work with other students to master course material.

Learning Outcomes and Course Goals: Students will learn about Ordinary Differential Equations (ODEs). First and second order equations are covered in detail with selected applications. Other topics include: difference equations, numerical techniques, higher order linear ODEs, power series, Laplace transforms, and eigenvalue and boundary problems.

Prerequisite: C or better in Math 251

Textbook: *Elementary Differential Equations and Boundary Value Problems*, Tenth Edition, by W.E. Boyce and R.C. DiPrima.

Attendance and online class behavior: Attendance is expected. Students are requested to attend class meetings with their webcams on. Turning on your webcam will get us closer to an on-campus experience. It also provides valuable visual feedback to the instructor, who will be able to give additional explanation on a topic should many students appear confused.

Except when speaking, microphones should be muted. When you have a question, please first try the "Raise Hand" feature or use the chat window. If the instructor misses these signals and is about to move on to a different topic, then please unmute your microphone and ask your question.

Homework: Homework is a crucial part of learning mathematics. Homework will generally be assigned on Mondays and due the following Monday. Homework is evaluated on *completeness*, and, depending on availability of resources, *correctness* on one or two selected problems.

Your homework is expected to be neat and conform to accepted standards for professional work-products. Handwriting must be clearly legible, and margins must be respected. Except for excused absences, late homework is not accepted. Your lowest two homework scores are dropped.

Group Project: During the semester, students will form groups to prepare and present a 45-minute mock lecture on a class-related topic of their choice, with the instructor playing the role of the student audience. The stages of the project are (1) group formation, (2) topic selection and approval, (3) lecture preparation, and (4) presentation. Details will be available in a separate document. The mock lecture presentation is recorded and forms part of the student's body of coursework. Like other coursework, the mock lecture recording is strictly confidential. Recordings will be deleted after the semester ends and course grades are finalized. By participating in the mock lecture presentation, a student consents to the recording.

Quizzes: A quiz corresponding to the latest homework will generally be assigned on Wednesdays. Quizzes will be available during a 24-hour window and are to be completed during a 40-minute period of your choice. Students must submit their own handwritten solutions and show all work. Quizzes are open book, open note, and open technology. During the 24-hour window of availability, you may not discuss the quiz with any person except the instructor. Your lowest quiz score is dropped.

Tests: There will be 3 tests, each covering between $1/4$ and $1/3$ of the course material. Tests are taken synchronously during class meetings and due 15 minutes after class ends. The tests are scheduled for Wed. Sep. 23, Wed. Oct. 21, and Fri. Nov. 20. Students must submit their own handwritten solutions and show all work. Tests are open book, open note, and open technology. During the test, you may not discuss the test with any person except the instructor.

Final Exam: The final exam is Monday, December 7, 8:00pm-10:00pm. The final exam is cumulative. Students are eligible to decline to take the final exam if the student's course grade as of Wednesday, December 2 is B- or higher. Eligible students will be notified by the instructor by email. Eligible students who wish to decline the final exam must do so by the deadline given in the notification. Except in cases where an eligible student declines to take the final exam by the deadline in the instructor notification, the final exam will be included in the course grade. Students must submit their own handwritten solutions and show all work. The final exam is open book, open note, and open technology. During the final exam, you may not discuss the exam with any person except the instructor.

Late Timed Assessments: Quizzes, tests, and the final exam are timed assessments. If a student is unable to complete a timed assessment in the allotted time due to an excused interruption (such as an internet service outage), then the student should email an explanation and the completed work to the instructor as soon as the cause of the interruption subsides. The method of resolution is at the discretion of the instructor and will depend on the circumstances of the irregularity. Possible resolutions include, but are not limited to, (1) accepting the late assessment as is, (2) combining the late assessment with a new one-on-one assessment, (3) replacing the late assessment with a new written assessment, and (4) replacing the late assessment with a new assessment having both a written and one-on-one component.

Make-Up Policy: Students who miss a homework, quiz, or test due to an excused absence must notify the instructor as soon as possible. Prior notification and instructor approval are required for scheduled excused absences. Homework missed due to an excused absence is accepted late. For quizzes and tests, the method of make-up work is at the discretion of the instructor and will depend on the number of students similarly situated. The possible formats for make-up quizzes or tests include, but are not limited to, (1) a one-on-one assessment, (2) a written assessment, and (3) an assessment having both a written and one-on-one component. In case of an extended excused absence, the absence will be treated according to the university's Emergency or Military Leave Policies, as applicable.

One-on-one Assessments: In certain circumstances, a one-on-one assessment may be required. During a one-on-one assessment, the instructor and the student engage in a one-on-one discussion regarding the material eligible to be covered on the original written assessment. The difficulty of the one-on-one assessment will be comparable to the difficulty of the original written assessment. Topics may include eligible material that appeared or did not appear on the original written assessment. The student is not expected to answer all questions perfectly, and conceptual understanding is more important than computational accuracy. One-on-one assessments are recorded and form part of the student's body of coursework. Like other coursework, the one-on-one assessment recordings are strictly confidential. Recordings will be deleted after the semester ends and course grades are finalized. By participating in the one-on-one assessment, a student consents to the recording.

Grading Rubric: Course averages are converted to letter grades according to the scale on the right. The instructor reserves the right to lower these thresholds.

Homework	10%
Group Project	5%
Quizzes	20%
Tests	$15\% \cdot 3 = 45\%$
Final Exam	20%
Total	100%

A: 90–100	B: 80–89.9
C: 70–79.9	D: 60–69.9
F: 0–59.5	

Regrade Policy: Regrades may be requested by submitting the original work with a written explanation of your request up to 1 week after the work is returned. Regrade requests are to be used to correct errors in grading. Regrade requests that challenge the amount of a deduction are usually not considered, since deductions for common mistakes are applied uniformly to all students. When regrading, the entire problem(s) in question will be reviewed, and all discovered errors in grading (including any that previously favored the student) will be corrected. The resulting grade may be higher than, equal to, or lower than the original.

Academic Integrity: You are expected to practice the highest possible standards of academic integrity. Any deviation from this expectation will, at a minimum, result in an academic penalty of a score of zero on the assignment or test in question. Additional disciplinary measures are possible. For more information, see the university's Student Conduct Code.

Closing Thoughts:

- Every element of the course that affects your grade is listed in the grading rubric. There are no hidden sources of extra credit. Please do not ask me for extra credit opportunities at the end of the semester. There are none.
- Learning mathematics is only possible through practice. Following along as someone else (e.g. your instructor or your tutor) works a problem is different from actually doing it yourself. Moreover, solving problems at your own pace is different from solving problems under the pressure of a quiz or a test. To do well on quizzes and tests, you should be able to solve the corresponding homework problems *with confidence*, correctly and efficiently on the first try.
- Supplementary tutors are a great source of help, but they are not a substitute for the instructor's help during office hours.
- To do well, the average student should plan to spend at least *10 hours per week* studying outside of class. The amount that you need may be higher or lower depending on your mathematical background and mastery of prerequisite material.
- It is very easy to trick yourself into thinking that you understand a concept in math when you really don't. Be honest with yourself about what you know and what you need to work on.
- The above notes are intended to give an accurate sense of the challenges ahead. I do want to see you succeed, and I will do everything that I can to help. However, the ultimate responsibility for your academic success lies with you.
- To maximize your chances of a successful semester (adapted from Dr. Miller's syllabus):
 - Attend all classes.
 - Read the relevant sections of the text before *and* after it is covered in class.
 - Attack homework soon after lecture, while the concepts are still fresh.
 - Attend office hours for help.
 - Fight hard to master all concepts in the class.