

Math 261: Elementary Differential Equations, Fall 2018

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

Class Meetings: MTWF 1:30pm-2:20pm in Armstrong Hall (ARM) 121

Office Hours: MW 2:30pm-3:30pm, Thurs 11:30am-12:30pm, and by appointment, in ARM 408H

Webpage: <http://www.math.wvu.edu/~milans/teaching/fa18/math261/>

Welcome: Welcome to section 008 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.

Permitted Calculators: Simple non-programmable calculators are permitted on quizzes, tests, and exams (e.g. TI-30, TI-34, "four-function" calculators). Graphing calculators, programmable calculators, calculators with computer algebra systems (CAS), and calculators with matrix operations are not permitted (e.g. TI-36, TI-83, TI-89).

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*, *neatness*, and *correctness*. Depending on availability of resources, correctness of homeworks may be assessed by grading 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. Pages must be stapled (paperclips or "dog-ear" binding not permitted). In accordance with the make-up policy, your lowest two homework scores are dropped.

Quizzes: A quiz corresponding to the latest homework will generally follow in class on Wednesdays. You may use a permitted calculator; no other aids are allowed. In accordance with the make-up policy, your lowest two quiz scores are dropped.

Tests: There will be 3 tests in class. You may use a permitted calculator and one 8.5 by 11 inch sheet of *handwritten* notes during each test. No other aids are permitted. Each test covers between 1/4 and 1/3 of the course material. The tests are scheduled for Wed. Sep. 12, Wed. Oct. 10, and Mon. Nov. 12. In accordance with the make-up policy, your lowest test score will be replaced by your score on the final exam if doing so will help your grade.

Final Exam: The final exam is Tuesday, December 11, 11:00am-1:00pm. All students must take the final exam during the scheduled exam period, unless specifically exempted by university rules. You may use a permitted calculator and one 8.5 by 11 inch sheet of *handwritten* notes during the final. No other aids are permitted. The final exam is cumulative.

Attendance: Attendance is expected. Leaving class early or arriving late is disruptive and counts as an absence. Failure to take quizzes/tests and failure to collect quizzes/tests when returned is considered evidence of absence. Students who miss 5 or fewer classes earn an attendance bonus of 2%. All absences, including those related to university Days of Special Concern, are counted against the attendance bonus.

Expected Classroom Behavior: Talking with your neighbors, reading material unrelated to the course, listening to audio entertainment on your headphones, texting, and using a laptop or cell phone are not permitted in class.

Classroom Participation: A bonus of up to 1.5% is possible for excellent classroom participation. The bonus is to be earned cooperatively by all students in the course, and all students receive the same classroom participation bonus. Activities that have a positive effect on the classroom participation bonus include asking and answering mathematical questions. To earn a high classroom participation bonus, a large portion of the class must ask or answer questions occasionally. *Activities that are not permitted in class have a strong negative effect on the classroom participation bonus.* In general, it is easy to reduce the classroom participation bonus quickly, and increasing the classroom participation bonus requires a prolonged period of good classroom participation.

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%
Quizzes	20%
Tests	$15\% \cdot 3 = 45\%$
Final Exam	25%
Total	100%
Attendance Bonus	2%
Classroom Participation Bonus	up to 1.5%

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

Make-up Policy: Excused absences that result in a missed assessment are, to the extent possible, accommodated by dropping the assessment (homeworks/quizzes) or by final exam score replacement (tests). Excused absences have the highest priority for dropping/replacing an assessment. In the event that a student's excused absences exhaust the provisions for dropping/replacing, a make-up assessment is required. Students must notify the instructor of excusable absences as soon as possible.

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 also visiting the instructor 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.