

Math 242, Section 002, Spring 2012

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

Class Meetings: MWF 1:25pm-2:15pm in LeConte 112

Office Hours: MF 2:30pm-3:30pm, W 10:00am-11:00am, and by appointment in LeConte 314C

Webpage: <http://www.math.sc.edu/~milans/teaching/sp12/math242/>

Welcome: Welcome to section 002 of Math 242: 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. Additionally, several free sources of help are available; please see the course website.

Learning Outcomes: Students will be able to find general and particular solutions to ordinary differential equations of the following types: separable, exact, nonlinear homogeneous, first- and higher-order linear equations, and systems of two differential equations. Students will learn solution methods such as integrating factors, substitution, variation of parameters, undetermined coefficients, Laplace transforms, and Euler's technique for finding approximate solutions. Students will use differential equations to solve a variety of problems (e.g. mixture, cooling, population, mechanical vibration, and electrical circuit problems).

Prerequisites: Qualification through placement or a grade of C or better in Math 142.

Textbook: *Differential Equations and Boundary Value Problems: Computing and Modeling*, Fourth Edition, by C. Henry Edwards and David E. Penney, Prentice-Hall.

Calculator: A graphing calculator is permitted; calculators with computer algebra systems (such as the TI-89) are not permitted during quizzes and tests.

Homework: In mathematics classes, most of your learning occurs while doing homework exercises. Late homework is not accepted. Your two lowest homework scores are dropped. You are strongly encouraged to work on the homework with other students in the class. Homework will be collected and graded for *presentation/neatness*, *completeness*, and *accuracy*, each weighed equally. To earn credit for *presentation/neatness*, your homework must be stapled, your writing must be clear, and your work must not be cramped. The accuracy of your work is checked on a randomly selected problem. At the end of the semester, if your quiz average is higher than your homework average, then I will increase your homework average to match your quiz average.

Quizzes: We will have short quizzes in class on Wednesdays. Quizzes cover material on the corresponding homework. No make-up quizzes are offered. Your lowest two quiz scores are dropped. You may use a graphing calculator without a computer algebra system during the quizzes. No other aids are permitted.

Tests: There will be 3 tests in class. No make-up tests are offered. However, I will replace one of your test scores with your score on the final exam if doing so will help your course average. You may use a graphing calculator without a computer algebra system and one 8.5 by 11 inch *handwritten* sheet of notes during each test. No other aids are permitted. Each test covers roughly 1/3 of the course material. The tests are tentatively scheduled for Feb. 8, Mar. 16, and Apr. 16.

Final Exam: The final exam is Thursday, April 26, 2:00pm-5:00pm. All students must take the final exam during the scheduled exam period. It is not possible to take the final exam at any other time. Students who miss the final exam will receive a score of zero. You may use a graphing calculator without a computer algebra system and one 8.5 by 11 inch *handwritten* sheet of 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 with a perfect attendance record earn an *attendance bonus* of 2%. Students who miss 4 or fewer classes (i.e. at most 10% of class meetings) earn an attendance bonus of 1%. Even excused absences count against your attendance; please see the academic bulletin on the university's attendance policy for more information.

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 2% 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.* Determination of the classroom participation bonus is entirely at the discretion of the instructor. 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	15%
Quizzes	15%
Tests	$15\% \cdot 3 = 45\%$
Final Exam	25%
Total	100%
Attendance Bonus	up to 2%
Classroom Participation Bonus	up to 2%

A:	90-100	C:	70-74.9
B+:	85-89.9	D+:	65-69.9
B:	80-84.9	D:	60-64.9
C+:	75-79.9	F:	0-59.9

Make-up Policy: No make-up quizzes or tests will be offered. Since the lowest two quiz grades are dropped, you may two quizzes and still earn full credit in the course. Since up to 1 test score can be replaced by your grade on the final exam, you may miss 1 test and still earn full credit in the course. In exceptional cases, students may be excused from quizzes or tests. The instructor will generally need thorough documentation to excuse you from a quiz or test. Students with valid reasons for missing a test should contact the instructor as soon as possible and appropriate arrangements will be made on a case by case basis.

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 likely. For more information, see <http://www.sc.edu/academicintegrity/>.

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.
- Some of you need to earn a certain grade in this course for various reasons: scholarships, admission to various programs, etc. I want to help you reach your goals, but please understand that informing me of these factors will not influence your grade in the course. If you know you need a certain grade, start working for that grade now.
- 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 *12 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.
- 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.