

Math 251: Multivariable Calculus, Fall 2013

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

Class Meetings: MW 6:00pm-7:50pm in Armstrong Hall 207

Office Hours: MW 1:30pm-2:30pm, Tues 11am-noon, and by appointment, in Armstrong Hall 408H

Webpage: <http://www.math.wvu.edu/~milans/teaching/fa13/math251/>

Welcome: Welcome to section 008 of Math 251: Multivariable Calculus. 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 understand how tools from calculus, such as derivatives and integrals, extend to more than one dimension. Students will also be introduced to basic concepts in linear algebra.

Prerequisite: C or better in Math 156

Textbooks: *Essential Calculus: Early Transcendentals*, Special Edition, by James Stewart (available at the campus bookstore), and *Linear Algebra Notes*, by James Moseley (available online).

Homework and Quizzes: Homework will generally be assigned on Wednesdays and a corresponding quiz will generally follow in class on Mondays. Doing homework is a crucial part of learning in mathematics. Unfortunately, limited resources make it impractical to collect and evaluate homework directly. However, *each quiz will feature at least one problem that is very similar to a homework problem.* No make-up quizzes are offered. Your lowest two quiz scores are dropped. Calculators without computer algebra systems are permitted. No other aids are permitted.

Tests: There will be 4 tests, administered in the second half of 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 permitted calculator and one 8.5 by 11 inch *handwritten* sheet of notes during each test. No other aids are permitted. Each test covers roughly 1/4 of the course material. The tests are scheduled for Sep. 11, Oct. 7, Nov. 4, and Dec. 2.

Final Exam: The final exam is Wednesday, December 9, 6:00pm-7:50pm. All students must take the final exam during the scheduled exam period, unless specifically exempted by university rules. Students who miss the final exam will receive a score of zero. You may use a permitted calculator 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 who miss 2 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.* 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.

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| Quizzes | 25% |
| Tests | $12.5\% \cdot 4 = 50\%$ |
| Final Exam | 25% |
| Total | 100% |
| Attendance Bonus | 2% |
| Classroom Participation Bonus | up to 1.5% |

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

Make-up Policy: No make-up quizzes or tests will be offered. Since the lowest two quiz grades are dropped, you may miss 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. This policy covers all absences, including absences due to university Days of Special Concern. In truly exceptional cases, students may be excused from additional quizzes or tests. Students with truly exceptional circumstances 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 possible. For more information, see the university’s Student Conduct Code.

University Statement on Social Justice: West Virginia University is committed to social justice. I concur with that commitment and expect to maintain a positive learning environment based upon open communication, mutual respect, and non-discrimination. Our University does not discriminate on the basis of race, sex, age, disability, veterans status, religion, sexual orientation, color or national origin. Any suggestions as to how to further such a positive and open environment in this class will be appreciated and given serious consideration.

If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class, please advise me and make appropriate arrangements with the Office of Disability Services (304-293-6700).

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.