

# Math 343: Introduction to Linear Algebra, Fall 2012

**Instructor:** Kevin Milans ([milans@math.wvu.edu](mailto:milans@math.wvu.edu))

**Class Meetings:** MWF 12:30pm-1:20pm in Armstrong Hall 112

**Office Hours:** MW 2:30pm-4:00pm, F 10:00am-11:00am, and by appointment, in Armstrong Hall 408H

**Webpage:** <http://www.math.wvu.edu/~milans/teaching/fal12/math343/>

**Welcome:** Welcome to section 002 of Math 343: Introduction to Linear Algebra. 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 and Course Goals:** Students will understand the theory of linear systems, matrices, determinants, vector spaces, linear transformations, eigenvalues, and eigenvectors. Students will strengthen their ability to understand and write mathematical proofs, and students will apply the theory to solve computational problems.

**Prerequisite:** Math 156

**Textbook:** *Elementary Linear Algebra with Applications*, Ninth Edition, by B. Kolman and D. R. Hill.

**Approved Calculators:** A simple arithmetic/scientific calculator is permitted during quizzes and tests. Calculators with graphing capabilities, built-in programming languages, networking, or computer algebra systems are not permitted during quizzes and tests. If you are unsure whether a particular calculator is acceptable, please see the instructor.

**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, but your written work must be your own. Homework will be collected and graded for *completeness* and *accuracy*, weighted equally. To earn credit for *completeness*, your homework must be complete, stapled, your writing must be clear, and your work must not be cramped. The *accuracy* of your work is checked on a 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 most Fridays. Quizzes cover material on the corresponding homework. 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. No aids are permitted, except an approved calculator.

**Tests:** There will be 3 tests, administered 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 an approved calculator and one 8.5 by 11 inch *handwritten* sheet of notes during each test. No other aids are permitted. Each test covers roughly  $1/3$  of the course material. The tests are tentatively scheduled for Sept. 28, Oct. 26, and Nov. 30.

**Final Exam:** The final exam is Wednesday, December 12, 3:00pm-5:00pm. 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 an approved 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 4 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 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.

**Office Visit Bonus:** Students who visit the instructor's office during regularly scheduled office hours on or before Aug. 31, 2012 earn a 0.25% course bonus.

**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%
Office Visit Bonus	0.25%
Attendance Bonus	2%
Classroom Participation Bonus	up to 2%

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 *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.