Math 375: Applied Modern Algebra, Fall 2015

Instructor: Kevin Milans (`milans@math.wvu.edu`)
Class Meetings: TuTh 11:30am-12:45pm in Hodges Hall 301
Office Hours: TuTh 2:15pm-3:15pm, W 10:00am-11:00am, and by appointment, in Armstrong Hall 408H
Webpage: `http://www.math.wvu.edu/~milans/teaching/fa15/math375/`

Welcome: Welcome to section 001 of Math 375: Applied Modern Algebra. I have the highest hopes and expectations for our class 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 basic principles of counting, set theory, graph theory, optimization and network flows, group theory, and coding theory (as time permits).

Prerequisite: Math 156

Textbook: *Discrete and Combinatorial Mathematics*, Fifth Edition, by R. P. Grimaldi. *(optional)*

Homework: In mathematics classes, most of your learning occurs while doing homework exercises. You are strongly encouraged to work on the homework with other students in the class, but your written work must be your own. In particular, *you must fully understand everything written down on your paper under your own name.* You may not obtain answers to homework exercises by using search engines, other textbooks, scholarly research articles, or other resources, because doing so would defeat the purpose of the homework.

Late homework is not accepted. Your two lowest homework scores are dropped. 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 Thursdays. 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. You may use a calculator on quizzes. No aids are permitted. Cell phones may not be used as calculators.

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 a calculator and one 8.5 by 11 inch *handwritten* sheet of notes during each test. No other aids are permitted. Cell phones may not be used as calculators. Each test covers roughly 1/4 of the course material. The tests are tentatively scheduled for **Thurs. Sept. 10, Thurs. Oct. 8, and Tues Nov. 10.**

Final Exam: The final exam is Wednesday, December 16, 11:00am-1:00pm. 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 a calculator and one 8.5 by 11 inch *handwritten* sheet of notes during the final. No other aids are permitted. Cell phones may not be used as calculators. 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 3 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 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.

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	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. To compensate for this strict policy, your lowest two quiz grades are dropped and your lowest test score will be replaced by your final exam score (if doing so improves your course average). 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 such 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.

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.