

Math 302 – Applied Modern Algebra Spring 2020

Course Meetings: Tuesdays and Thursdays, 1:00 – 2:15 pm, 110 Hume Hall

Instructor: Dr. Rizwanur Khan

Office: 320 Hume Hall

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Office Hours: TuTh 8:45 – 10:15 am

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Texts

Mathematics, A Discrete Introduction, by Edward R. Scheinerman, any edition

Topics

By the end of this course, you should be able to (as time permits)

- perform calculations using modular arithmetic, including finding multiplicative inverses using Euclid's algorithm and solving simultaneous linear equations
- define the four basic properties of an abstract group, determine whether a set and operation satisfy these properties, and use them to prove other facts about groups
- explain the theoretical basis for public key encryption, and apply RSA algorithms
- apply Polya enumeration methods to examples involving symmetry groups
- write recurrence relations to model counting problems, and solve linear recurrence relations

Coverage of these topics will include sections 22, 26, 27, and 34-45 of the 2nd edition Scheinerman text. Topics towards the end of the course (Polya enumeration) are not in the textbook, but adequate lecture notes will be provided on the board (please take good notes).

Blackboard

You will use the Blackboard online course system to get course assignments and supplemental materials, and to view your test and homework scores. Login at blackboard.olemiss.edu. You can find basic instructions for using the system at www.olemiss.edu/blackboard

Homework

Homework will be assigned every Thursday on Blackboard. Homework is due every Thursday at the START of class. Only neatly written homework will be accepted. No late homework will be accepted and no emailed homework will be accepted (except in rare circumstances when you cannot come to class due to an illness or university function).

You are expected to work all assigned problems, although not all problems will be graded. A random selection will be graded. You will be graded on both content and presentation, so please make clear and concise arguments and present your work in a neat, organized manner.

You are encouraged to form study groups and to discuss homework problems with your classmates. However, the work you turn in must be your own. That is, everything you write must be in your own words, and you need to understand everything you have written.

Tests

There will be three (3) in-class tests. All will be closed-book. The lowest test score will be dropped. Make-up tests will not be given for any reason except when a student is absent for an official University function, for which written documentation has been provided. In this case, you should notify me in advance before the scheduled test time. The final exam will be cumulative.

Course Withdrawal Deadline: Monday, March 2.

Grade Calculation

Your overall grade will be based on the following point total:

Homework	50 points
Best two tests, 50 points each	100 points
Final exam	100 points

Score	%	Minimum grade
232.5	93%	A
225	90%	A-
217.5	87%	B+
207.5	83%	B
200	80%	B-
192.5	77%	C+
175	70%	C
350	60%	D

Remember that grades lower than C in mathematics courses will not be counted toward the mathematics major for the B.A. or B. S. degree.

Example: If you get an overall score of 92%, you are guaranteed an A- at least. It is also possible that this will become an A if I curve the grades a bit at the end of the semester.

Tentative Schedule

These dates are subject to change. You will be notified of any changes in advance.

Tuesday, February 25	Test 1
Thursday, March 26	Test 2
Tuesday, April 21	Test 3
Thursday, May 7 at noon	Final Exam

Regrading

If you believe a problem has been graded in error, you must submit a regrade request in writing, along with your paper, no more than one week after that test or assignment is returned in class. Do not change or add to the work on your paper. Make any necessary notes on a separate sheet.

Attendance

Attendance will be recorded each class. It is your responsibility to sign in using the attendance scanner. If you attend class but forget to sign in, you must email me within 24 hours and I will manually mark you as present.

You are allowed 3 absences. Any further absences will be excused for a valid reason (e.g. illness or participation in a university function) if you contact me. For every *unexcused* absence over the 3 allowed, you will lose 5 points from your overall grade total. You are responsible for any material, assignments, or announcements that you miss if absent from a class. No special accommodations (e.g. copies of lecture notes, make-up tests, etc.) will be provided, but you *are* encouraged to come to office hours if you have questions on what you missed. *Excessive absences may result in the student being dropped from or failing the course.*

Cell phones, pagers, and other electronic devices which might cause disruption should be turned off or silenced before class begins. These may not be used during class.

Academic Misconduct

You are expected to abide by the guidelines for academic honesty given in the M-Book. Sanctions for academic misconduct may include grade reduction, extra work, failure of the course, suspension, expulsion, or a combination of these sanctions. Academic misconduct includes presenting for grading anything which is not your own original work, using unapproved sources for any assignment or test, allowing someone else to copy your work for a graded assignment, or asking for a regrade of a paper that has been altered from its original form. If you study with other students or a tutor, do not look at notes from that study when you write homework to be graded. *If you have any doubts about whether something is proper, ask.*

Special Needs

It is University policy to provide, on a flexible and individual basis, reasonable classroom accommodations to students who have verified disabilities that may affect their ability to participate in course activities or meet course requirements. Students with disabilities are encouraged to contact the instructor or Office of Student Disability Services to discuss their individual needs for accommodations.