Math 302 – Applied Modern Algebra
Fall 2019

Course Meetings: Mondays, Wednesdays, and Fridays, 8:00 – 8:50 am in 111 Hume Hall
Instructor: Dr. Rizwanur Khan
Office: 320 Hume Hall
Phone: (662) 915-7071
Office Hours: MWF 10:30 – 11:30 am
E-mail: rtkhan@olemiss.edu

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.

Blackboard
You will use the Blackboard online course system to get course assignments and supplemental materials, class announcements. 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 Wednesday on Blackboard. Homework is due every Wednesday at the START of class. No late homework will be accepted. You are expected to work all assigned problems, although not all 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 except when a student is absent for an official University function, for which written documentation has been provided. If you must miss a test, you should notify me before the scheduled test time. The final exam will be cumulative.

Course Withdrawal Deadline: Monday, October 7
Grade Calculation

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

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
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<tbody>
<tr>
<td>Homework</td>
<td>50</td>
</tr>
<tr>
<td>Best two tests</td>
<td>100</td>
</tr>
<tr>
<td>Final exam</td>
<td>100</td>
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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.

<table>
<thead>
<tr>
<th>Score</th>
<th>%</th>
<th>Minimum grade</th>
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<tbody>
<tr>
<td>232.5</td>
<td>93%</td>
<td>A</td>
</tr>
<tr>
<td>225</td>
<td>90%</td>
<td>A-</td>
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<tr>
<td>217.5</td>
<td>87%</td>
<td>B+</td>
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<tr>
<td>207.5</td>
<td>83%</td>
<td>B</td>
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<tr>
<td>200</td>
<td>80%</td>
<td>B-</td>
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<tr>
<td>192.5</td>
<td>77%</td>
<td>C+</td>
</tr>
<tr>
<td>175</td>
<td>70%</td>
<td>C</td>
</tr>
<tr>
<td>350</td>
<td>60%</td>
<td>D</td>
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Tentative Schedule

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

- Monday, September 23: Test 1
- Monday, October 21: Test 2
- Monday, November 18: Test 3
- Monday, December 9 at 8am: 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. You are allowed 3 absences. Any further absences will be excused for a valid reason (e.g. illness or participation in a university function). For every unexcused absence over the 3 allowed, you will lose 5 points from your overall grade score. 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.