MTH 550-Foundations of Abstract Algebra
Course Syllabus: Summer II 2015

Instructor: Padmapani Seneviratne, Ph.D
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Office Hours: TBA.

Class Schedule: TR 9:00 – 12:50 pm
Location: BA 244
MPLX 120, BC 322

COURSE INFORMATION

Free Textbook:
(http://abstract.ups.edu/)

Technology:
- We will be using the Magma computer algebra system to understand and construct groups and related structures.
- Students may use a TI 83/84 or equivalent calculator for this course.

Course Description:
This course will cover the fundamental properties of algebraic structures such as properties of the real numbers, mapping, groups, rings, and fields. The emphasis will be on how these concepts can be related to the teaching of high school algebra. Note: This course will be helpful to secondary teachers by giving them a better understanding of the terms and ideas used in modern mathematics. Prerequisites: MATH 331 or Math 500

Student Learning Outcomes:
Upon completion of the course, students will be able to:

1. Understand the properties of integers, real numbers and sets.
2. Demonstrate knowledge and understanding of groups, subgroups, and order of an element in finite groups.

3. Demonstrate knowledge and understanding of cosets and Lagrange’s theorem.

4. Demonstrate knowledge and understanding of symmetric groups, cyclic groups and their properties.

5. Demonstrate knowledge and understanding of the concept of quotient groups, group homomorphisms and isomorphisms.

6. Apply these concepts in cryptography and coding theory.

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**COURSE REQUIREMENTS**

**Instructional:** Lecture.

**Attendance:** It is expected that you attend classes daily and it is your responsibility to sign the daily class roll sheet. It is expected that you follow the guidelines set forth by the Class Attendance Policy in the current undergraduate catalogue.

**Exams:** There will be one midterm exam, take home quizzes and a comprehensive final exam for this course.

**Mid term Exam : Take Home**

**Final Exam: Thursday August 13th: Class time**

**Home work/Quizzes:** You are encouraged to try all the homework problems. There will be weekly take home quizzes.

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**COURSE GRADES**

**Grading policy:** The course grade consists of

<table>
<thead>
<tr>
<th>Component</th>
<th>Points</th>
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<tbody>
<tr>
<td>Midterm Exam</td>
<td>200</td>
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<tr>
<td>5 Quizzes</td>
<td>200</td>
</tr>
<tr>
<td>Final Exam</td>
<td>300</td>
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<tr>
<td><strong>Total</strong></td>
<td>700</td>
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**Grading Scale:**
A: 90 – 100%, B: 80 – 89%, C: 70 – 79%, D: 60 – 69%, F: 0 – 59%

**COURSE AND UNIVERSITY PROCEDURES/POLICIES**

**Withdrawal Policy:**
Concerning the deadlines and consequences of withdrawals please check on: [https://ems.tamuc.edu/MasterCalendar/MasterCalendar.aspx](https://ems.tamuc.edu/MasterCalendar/MasterCalendar.aspx)

**Make-up work:**
No late tests will be given. If you miss a test, the final will be used to replace that score. No late homework will be graded and weekly quizzes will not be repeated if missed. However, a percentage of the homework and quiz grades will be dropped to cover days when an absence is unavoidable.

**Getting Help:**
You are welcome and encouraged to use office hours if you need any help during the semester. Further, you can find free tutors at the Math Skills Center located in Binnion Hall 328.

**Academic Integrity:**

Texas A&M University –Commerce has explicit rules and regulations governing academic dishonesty and academic misconduct. These policies are stated in detail in the student’s Guide Handbook. Each student is expected to read this document and abide by the contained policies. These university polices will be followed in class. The minimum penalty an act of academic dishonesty will be a grade of 0 on the examination or homework assignments.

**University Specific Procedures**

**ADA Statement**

**Students with Disabilities**
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

**Office of Student Disability Resources and Services**
Texas A&M University-Commerce
Gee Library- Room 132
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
StudentDisabilityServices@tamuc.edu
**Nondiscrimination Statement**

A&M-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

**Student Conduct**

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. (See Code of Student Conduct from Student Guide Handbook).