I. COURSE INFORMATION

1. Meeting Time & Place: TR 5:30 to 6:45, CS 111.
2. Professor: Dr. George Tintera
3. Office Phone: (361) 825-6028
4. Office Address: CI 303
5. E-MAIL Address: george.tintera@tamucc.edu
6. Web Page Address: http://www.tamucc.edu/~tintera/
7. Office Hours: TBA. And by appointment. Office hours subject to meetings related to other duties on campus. They may change during the semester.

II. COURSE DESCRIPTION

Fundamentals of set operations, maps and relations, groups, rings and field theory, Topics include groups, cosets, homomorphisms, isomorphisms, direct products of groups, and rings, integral domains, field of quotients, fundamental properties of integers, the ring of integers modulo n and rings of polynomials. Applications.

III. PREREQUISITES for the COURSE

MATH 3311 and MATH 3313

IV. TEXT and OTHER SUPPLIES REQUIRED


V. COURSE OBJECTIVES

This course is designed to enable students to:

1. Understand the importance of sets and mappings in algebra and other areas of mathematics.
2. Understand the properties of the most important algebraic structures, and to recognize the relationship between them.
3. Use physical models to discover properties and relationships
4. Read and reproduce proofs for relevant theorems, and apply these techniques to construct arguments and proofs for textbook and other problems.
5. Perform self-guided learning to support the development of independent thinking, and participate in classroom discussions and presentations to develop communication skills.
6. Establish connections between Modern Algebra and other topics in mathematics.

VI. INSTRUCTIONAL METHODS AND ACTIVITIES
The heart of the instructional method for this course is student activity. Students will be challenged to solve many problems from the text. Finally, the instructor will lecture when necessary to go over material as needed and present solutions to a variety of problems.

VII. EVALUATION AND GRADE ASSIGNMENT

Course grades will be based on homework (25%), class discussion (5%), semester exams (30%), final exam (30%):

- **Homework** will be assigned at each class meeting. Written solutions will be graded as 'Done' or 'In Progress.' Work graded as In Progress can be turned in within a week for regrading. Exercises not attempted or not redone within a week will not be graded. This can be done indefinitely until the last week of classes. For each assignment, each Done problem will earn one point. The homework grade is the total number of points earned divided by the number of points possible.
- **Challenge Homework.** Students can earn extra points by solving problems that other students have not completed by presenting their solutions to the class.
- **Class Discussion** will be graded but is strongly encouraged. Participation is the basis for the grade.
- **Semester Exams** will take place as scheduled below.
- **The Final Exam** will be held at the time designated for our course. It will be comprehensive. Plan to be there.

<table>
<thead>
<tr>
<th>Grade</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F</th>
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</thead>
<tbody>
<tr>
<td>Score</td>
<td>90% - 100%</td>
<td>80% - 89%</td>
<td>70% - 79%</td>
<td>60% - 69%</td>
<td>0% - 59%</td>
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VIII. TENTATIVE COURSE SCHEDULE

<table>
<thead>
<tr>
<th>Week of</th>
<th>Tuesday</th>
<th>Thursday</th>
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<tbody>
<tr>
<td>Jan 21</td>
<td>No Class</td>
<td>Why Algebra</td>
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<tr>
<td>Jan 28</td>
<td>Operations</td>
<td>Groups</td>
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<tr>
<td>Feb 4</td>
<td>Properties of Groups</td>
<td>Proofs of Group Properties</td>
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<tr>
<td>Feb 11</td>
<td>Subgroups</td>
<td>Generators and Relations</td>
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<tr>
<td>Feb 18</td>
<td>Functions</td>
<td>Permutations</td>
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<tr>
<td>Feb 25</td>
<td>Permutations of Finite Sets</td>
<td>Isomorphisms</td>
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<tr>
<td>Mar 4</td>
<td>Review</td>
<td>Exam #1</td>
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<tr>
<td>Mar 11</td>
<td>No Class</td>
<td>No Class</td>
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<tr>
<td>Mar 18</td>
<td>Order of Elements</td>
<td>Cyclic Groups</td>
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<tr>
<td>Mar 25</td>
<td>Partitions and Equivalence Relations</td>
<td>Lagrange’s Theorem</td>
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<tr>
<td>Apr 1</td>
<td>Homomorphisms</td>
<td>Quotient Groups</td>
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IX. CLASS POLICIES

- This class is run for the mathematical development of all participants. All students must accept responsibility for participating and consequences of not participating.
- University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test can result in a failing grade on an assignment, reporting to the Dean of Students and a failing grade for the class.
- I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with me before you decide to drop to be sure it is the best thing to do. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. (Friday, April 12) is the last day to drop a class with an automatic grade of “W” this term.
- Please turn off phones and beepers before coming to class.
- Attendance is expected. It is the only way to do in-class work.
- Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.
- All absences from the midterm and final exam will be considered unexcused unless they are documented in advance as excusable with the instructor or as soon as possible in the case of emergencies. No credit will be awarded for unexcused absences from the final exam or midterms. Final exams can only be made up after June 1.
- **Notice to Students with Disabilities**: Texas A&M University-Corpus Christi complies with the Americans with Disabilities Act in making reasonable accommodations for qualified students with disabilities. If you suspect that you may have a disability (physical impairment, learning disability, psychiatric disability, etc.), please contact the Services
for Students with Disabilities Office, located in Driftwood 101, at 825-5816. If you need
disability accommodations in this class, please see me as soon as possible.

- **Grade Appeal Process.** As stated in University Rule 13.02.99.C2, Student Grade
  Appeals, a student who believes that he or she has not been held to appropriate academic
  standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate
  grading, may appeal the final grade given in the course. The burden of proof is upon the
  student to demonstrate the appropriateness of the appeal. A student with a complaint
  about a grade is encouraged to first discuss the matter with the instructor. For complete
  details, including the responsibilities of the parties involved in the process and the
  number of days allowed for completing the steps in the process, see University Rule
  13.02.99.C2, Student Grade Appeals, and University Procedure 13.02.99.C2.01, Student
  Grade Appeal Procedures. These documents are accessible through the University Rules
  and/or guidance in the grade appeal process, students may contact the Office of Student
  Affairs.