Graduate Abstract Algebra I

MATH 5331-001 (22779)

Classroom:	Tues & Thur 5:30-6:50 pm in PKH 105
Contact Data:	PKH 462, 817-272-3932, vancliff@uta.edu
Web:	http://www.uta.edu/math/vancliff/T/S14
Office Hours:	Tues & Thur 4:40-5:20 pm in PKH 462, or by appointment
Textbook:	Abstract Algebra, by D. S. Dummit & R. M. Foote, 3rd Ed., Wiley.
Prerequisite:	Math 3321.
Tests:	Quiz: Thurs Jan 30 (15 minutes) = 0%; Test 1: Thurs Feb 6 (20 minutes) = 10%; Test 2: Thurs Feb 27 (30 minutes) = 16%; Test 3: Thurs April 10 (70 minutes) = 30%; Final Test: 5:30-8:00 pm on Tues May 6 = 40%. All tests are comprehensive. Bring photo ID to all tests.
Weighting:	See above + attendance = 4% Each test will be "curved" separately and its grade (not score) will contribute to your course grade. Good attendance & participation will help your course grade if your course grade is borderline.
Note:	any student with a nonpositive score on the Final Test will not pass this class.
Important Dates:	Wed Jan 29 = Census date; Mon Jan 20 = MLK Day; Tests (see above): Jan 30, Feb 6, Feb 27, Apr 10, May 6; Mar 10-14 = Spring Break; Fri Mar 28 = last day to drop course with W (see page 3); Thur May 1 = our last class. **Note these dates in your calendar!**

COURSE CONTENT & LEARNING OUTCOMES

The topics to be covered are: Zorn's Lemma; group theory including free groups, dihedral groups & abelian groups; ring theory including factorization, localization, rings of polynomials, and rings of formal power series; an introduction to modules. These topics are covered in the textbook in parts I & II, in chapter 10, and in chapter 15.

Expected Learning Outcomes: upon completion of this course, for any of the topics listed above, you should be able to: 1. write the definition of many of the terms; 2. solve problems; 3. construct correct and detailed mathematical arguments to justify your claimed statements, i.e., write proofs of some basic results.

This course is a first course in Abstract Algebra, and the topics covered will enable students to pursue courses such as algebraic geometry (both commutative & non-commutative), non-commutative algebra, commutative algebra, Galois Theory, Lie algebra, Number Theory, Coding Theory, homology, etc.

Rings & groups are useful in classical & quantum mechanics, coding theory & other areas; in particular, they play a crucial role in robotics, & in describing the movement of electrons in an atom.

HOMEWORK

The homework will be posted on my website (see above). It will not be collected, but is assigned to help you learn the material and prepare for the tests. It is your **brain exercise**. The tests will be designed to determine whether you have mastered the ideas in the homework and in the lectures. Indeed, at least half of each test will be based on homework problems. Some reading might also be assigned, owing to the amount of material that we need to cover.

CALCULATORS

No calculator is allowed on any test, so you are advised not to use one on the homework.

ATTENDANCE

Attendance is required and counts for 4% of your grade. You are responsible for any and all announcements made in class and on my website. You are responsible for any and all material missed during lecture. If you miss a lecture, you can figure out the material covered by checking the homework assignment for that day.

HELP OUTSIDE CLASS TIME

Feel free to ask me **relevant** questions during class, after class and in office hours. You can also e-mail me your questions, or ask me to look over your solution to a homework problem. My office hours are times I am planning to be in my office where you can drop by withOUT an appointment to ask me questions.

STUDENT SUPPORT SERVICES

In addition to the resources provided by this class (& on my website, which you should check every couple of days), UTA provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students should either visit the reception desk at University College (Ransom Hall), or call the Maverick Resource Hotline at 817-272-6107, or send a message to resources@uta.edu, or view the information at http://www.uta.edu/resources .

Also, a list of tutors is available from the Mathematics Department Office, but note that this list is not endorsed by the Mathematics Department.

HOW TO DO WELL IN THIS COURSE

Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend **at least an additional 9 hours/week** of their own time in course-related activities, including reading required materials, completing assignments, preparing for tests, etc. The best way to guarantee a good grade in this course is to take good lecture notes and to read them over after class before starting the homework, and to do ALL the assignments on a **regular** basis and to discuss the material with each other. After completing any one assignment, put together a list of the ideas you learned in doing that assignment; keep your list to help in studying for the tests. See page 5 for techniques on how to study.

It is very important that you know how to work out the homework problems correctly. If you use a solutions manual, be sure to use it in a way that helps you understand & remember the concepts and arguments.

CONFLICT WITH EXAMINATION DATES

Students who miss tests due to UNauthorized reasons will NOT be accommodated. In particular, your personal commitments (e.g., job) must accommodate the test dates/times.

If you have a conflict with a test, or if you miss a test, you should contact me as soon as possible (in person, by e-mail, or by phone (leave a message on my answering machine (NOT with the math office) if I am not there)). If you miss any test for an authorized reason which can be verified with official documentation (e.g., hospitalization), then accommodations will be offered (no make-up tests). Any student not earning a positive score on the Final Test for this class will not pass this class.

DISABILITY ACCOMMODATIONS

The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the Americans with Disabilities Act (ADA). All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Furthermore, if a student has an officially recognized disability, and would like special arrangements for any test, then s/he should notify me informally (e.g., by e-mail) AS SOON AS POSSIBLE so that appropriate arrangements can be made in time for the test. I am happy to help in this, but advance information helps me a lot in this endeavor.

DROP POLICY

Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. Students will NOT be automatically dropped for non-attendance. Repayment of certain types of financial aid administered through the University might be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (http://wweb.uta.edu/aao/fao/).

However, nonpayment of tuition might result in a student being dropped from the class.

ELECTRONIC COMMUNICATION

UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at
http://www.uta.edu/oit/cs/email/mavmail.php .

ACADEMIC INTEGRITY

Students enrolled in this course are expected to adhere to the UT Arlington Honor Code:
"I pledge, on my honor, to uphold UT Arlingtons tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence. I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code."

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System Regents Rule 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which might result in the students suspension or expulsion from the University and a grade of FAIL in the class given to involved student(s). In particular, the Regents' Rules and Regulations states: "scholastic dishonesty includes, but is not limited to, cheating, plagiarism, collusion, the submission for credit of any work or material that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts".

Photo-ID is REQUIRED at all tests. UTA has informed all its faculty that steps should be taken to discourage cheating on tests. As such I will uphold the following during the tests:

- cellular phones & other electronic devices need to be OFF (not silent mode);
- all items not needed for the test, including cellular phones & other electronic devices, should be placed on the floor by the wall;
- if you wish to leave the room during a test, you should ask permission first and turn in your test to me — only in exceptional circumstances will I let you continue the test should you return (so it is better to be 3 minutes late to the test, rather than ask to go to the restroom during the test);
- if you finish a test early but prefer to stay in the room, then you should NOT get out any work, book nor item, no matter what the subject matter is.

Remember, in any test, keep your eyes on your own work only.

UTA reserves the right to impose disciplinary action for any kind of infraction of UTA policies. Engagement in conduct which disrupts, obstructs or interferes with activities authorized by UTA will result in disciplinary action against the perpetrator(s). Such conduct includes leaving and returning to the room frequently during class. It also includes the use of a cellular phone, ringing cellular phones, etc.

STUDENT FEEDBACK SURVEY

At the end of each term, students enrolled in classes categorized as "lecture", "seminar" or "laboratory" shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit http://www.uta.edu/sfs .

FINAL REVIEW WEEK

A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week (FRW). The purpose of FRW is to allow students sufficient time to prepare for their final examinations. Although classes are held as scheduled during FRW, and instructors may introduce new concepts as appropriate during FRW, there shall be no scheduled activities such as required field trips or theatrical performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week unless specified in the class syllabus. During FRW, an instructor shall not give any examinations constituting 10% or more of the course grade, except make-up tests and laboratory examinations, and no instructor shall give any portion of the final examination during FRW.

DISTRACTION IN THE 21ST CENTURY!!

During all classes, cellular phones should be SWITCHED OFF and any electronic device not used for learning the class material should be out of sight.

STUDY TECHNIQUES

See the website http://www.uta.edu/math/vancliff/T/S09/1426study.pdf for a list of study techniques for calculus students; many of those study techniques apply to your studying the material in this course. Moreover, check my website from time to time for additional resources. See the section "How to do well in this course" on page 2 above.

EMERGENCY EXIT PROCEDURES

Should we experience an emergency event during class that requires us to vacate the building, students should exit the room and move toward the nearest exit, which is located TO YOUR RIGHT as you exit the room. When moving through the building during an emergency, use the STAIRS, not an elevator. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist handicapped individuals.

In the event of a tornado siren, exit the room to your left and head to PKH 110 or another internal classroom on the first floor of this building; stay away from windows and external walls.