

MATH 3330, FALL 2017

ABSTRACT ALGEBRA

Class Website: www.math.uh.edu/~tomforde/Math3330F17.html

On the course website you will find the homework as it is assigned, as well as a copy of this syllabus, exam dates, and announcements as they are made.

Course Description

This course is an introduction to Abstract Algebra, a major branch and cornerstone of modern mathematics. We will focus on the study of *groups*, which are abstract objects used to generalize the operations of "addition" and "multiplication" from basic arithmetic. Topics will include axiomatic formulation of groups, subgroups, homomorphisms and quotient groups, isomorphisms, symmetry groups and permutation groups, and the structure and classification of groups. Proofs will be used extensively throughout the course and there will be great emphasis on developing mathematical maturity and comfort with using the axiomatic approach common in advanced mathematics. We will also explore numerous concrete examples and applications.

Instructor

Dr. Mark Tomforde
Office 601 PGH
www.math.uh.edu/~tomforde

Class Meetings

MWF Noon -- 12:50PM
SEC 201

Prerequisites

Math 3325 and Math 2331

Office Hours

MWF 11:00AM -- 11:50AM
Office 601 PGH

I encourage you to come by my office if you have questions, need help with homework problems, or want to talk about the material.

Objectives

Students will learn the basics of group theory, including proofs of fundamental results in the subject, and be able to use this knowledge to solve problems and prove results of their own. Great emphasis will be placed on effective writing and communication. Students will also be exposed to the notation, language, and methods used by professional mathematicians.

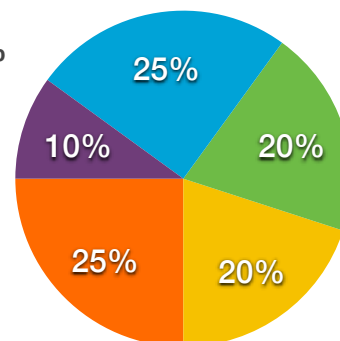
Textbook

Contemporary Abstract Algebra, 8th Ed., by Joseph Gallian

Grading

Your final grade for the class will be determined as follows:

- Class Participation: 10%
- Homework: 25%
- Exam 1: 20%
- Exam 2: 20%
- Final Exam: 25%



Class Participation

Class participation is based on attendance and how engaged you are in class meetings. It is vital to attend every class meeting and pay attention, particularly since some lecture material does not appear in the text. Questions on exams will be drawn from homework, reading, and lectures. If you have to miss class for school approved reasons (e.g., school sponsored events, major religious holidays) you need to let me know as soon as possible, and prior to the missed class, for it to not count against your grade. Please keep in mind that class participation is 10% of your final grade, which is significant; a 10% difference in your final score in the class can change your grade by an entire letter grade or more (e.g., an A- to a B-, or a C+ to a D+).

Homework

Homework problems with due dates will be given every week on the course web page. Your lowest homework score throughout the term will be dropped when calculating your final grade. This is meant to account for unexpected absences (e.g., illness or getting caught in traffic). You are encouraged to discuss homework problems with others, but the write-up should be done by you alone and in your own words.

Homework Policies

- **Homework is due at the beginning of class on its due date. Late homework will not be accepted for any reason. Homework is late once I have started lecturing.**
- **Homework without a name will not be accepted.**
- **Homework will not be accepted by email.**
- **Homework should be written legibly and on only one side of the paper. Leave enough room for the grader to make comments.**
- **Homework should be stapled in the upper-left-hand corner.**
- **Homework should be written on standard-sized paper (8.5" x 11"), with no "fringe" down the side as a result of the paper having been torn out of a spiral notebook**
- **Homework solutions should be presented in sequential order. For example, if Section 2.1, Problems #6, and #12 are assigned together with Section 2.2, Problem #2, then your write-up should contain Section 2.1, Problem #6 first; Section 2.1, Problem #12 second; and Section 2.2, Problem #2 third.**
- **Homework not picked up within one week of when it is returned will be discarded.**

Points will be deducted from homework for each infraction of the above policies.

Writing Proofs

You should think of proofs as writing assignments. When a problem asks you to prove (or show or verify) a proposition, you should write the proof up in “textbook style”. This should include a statement of the proposition you are proving, followed by a proof providing a clear and logically correct argument that explains to the reader why the result is true. Throughout the course you will get feedback on your proof writing, as well as see many examples of correctly written proofs in your textbook and in class, but you should be aware at the outset that **at a minimum, your proofs must contain complete sentences, proper spelling and grammar, and correct English usage.**

Exams

There will be two exams and one final. All will be held in our usual classroom.

Exam 1: Wednesday, September 27 in class. (Note: Date changed due to Hurricane Harvey.)

Exam 2: Friday, October 27 in class.

Final: Friday, December 8, 11AM--2PM in our usual classroom.

Calculator Policy: Calculators are not allowed during exams.

Makeup Policy

Not being present for an exam or turning in an assignment late results in a score of zero, and you will not be allowed to make up the work. Exceptions may be made in the case of extreme circumstances, such as a documented, serious illness. In the event that you cannot be present to take an exam on the day it is held you need to speak to me in advance and make every attempt to do the work before (and not after) the rest of the class.

Reading Assignments

Reading assignments will be given weekly on the course web page. Completing the reading assignments is just as critical as doing the written homework. **You should read the assigned sections before we cover them in class**, so that you are prepared to answer questions or ask about material you do not understand.

Questions After Class

Immediately after this class I have to attend a seminar. In order to be on time, I have to leave the classroom as soon as lecture is finished and I erase the board. Consequently, I will not have time to answer questions at the front of our classroom after lecture has ended. If you have questions or need to talk to me, please do so either before class begins or at my office hours. Keep in mind that I have office hours immediately prior to this class, from 11:00 -- 11:50AM on MWF.

Honor Principle

University of Houston students are expected to adhere to the Academic Honesty Policy as described in the Student Handbook. In this course this shall mean the following: **Exams shall be worked on independently and without the use of your textbook, homework, calculators, or class notes. Homework may be discussed with others, but the write-up must be done on the student's own and in the student's own words, without the help of other people or outside sources. If you are aware of anyone who is cheating or receiving unfair outside assistance, you are honor bound to inform the professor of what is occurring, and you will be considered an accomplice if you do not.** Anyone caught cheating will receive a failing grade in the course and be turned over to the department chair and dean for further disciplinary action.

Classroom Environment

As your professor, I hold the fundamental belief that everyone has a right to learn and deserves unrestricted access to education. I also believe that everyone in this class is fully capable of mastering the material. I value diversity, social justice, inclusion, and equality. I am therefore committed to creating a classroom environment that welcomes all students, regardless of race, gender, social class, religious beliefs, etc. If there is anything causing barriers to your inclusion or achievement, please come talk to me. Likewise, any student with a disability or chronic health problem should talk to me about the types of assistance that might be offered.

CAPS Statement

Counseling and Psychological Services (CAPS) can help students who are having difficulties managing stress, adjusting to college, or feeling sad and hopeless.

You can reach CAPS < www.uh.edu/caps > by calling 713-743-5454 during and after business hours for routine appointments or if you or someone you know is in crisis. No appointment is necessary for the "Let's Talk" program, a drop-in consultation service at convenient locations and hours around campus. < http://www.uh.edu/caps/outreach/lets_talk.html >

Tutoring

Starting this fall the Math Department is offering tutoring for 3000-level and 4000-level courses in the Mathematics Undergraduate Student Lounge (MUSL), located in Fleming Basement, Room 11. The Math Department will announce a schedule for tutoring the first few days of class. In addition, I have arranged for a math major to provide a 1-hour tutoring session that is specific to this section of Math 3330.

Shahzad Kalloo, Mondays at 5:30PM -- 6:30PM in MUSL (Fleming Basement, Room 11)

Shahzad will be familiar with our particular section of Math 3330 and be ready to answer questions about our homework or the expectations for your written proofs. Although any of the MUSL tutors will be able to help you with Math 3330 material, Shahzad will be particularly focused on helping this section and up-to-date on what we are covering.

No Class

There will be no class the week of October 16 because I will be in Europe at a conference. In particular, the following three class dates are cancelled: October 16, October 18, October 20.

UPDATE: Due to Hurricane Harvey, I've canceled my trip. Class will be held Oct. 16—20 as usual.

Important Dates

The following are some important dates you should keep in mind:

Note: Dates were updated after Hurricane Harvey. Dates that remained unchanged are in **Black**, dates that have changed are in **Red**.

September 4, Labor Day, No Class

September 8, Official Reporting Day (ORD), Last day to Drop/Withdraw without receiving a grade

September 27, Exam 1 (during class time in our usual classroom)

October 16 -- October 20, Dr. Tomforde canceled his trip. Class will be held as usual.

October 27, Exam 2 (during class time in our usual classroom)

October 31, Last day to Drop/Withdraw with a W grade

November 22 -- November 25, Thanksgiving Break, No Class

December 2, Last Day of Classes

December 8, Final Exam (from 11AM -- 2PM, in our usual classroom)