Abstract Algebra MAS4301/09B1/16070 Fall 2020

Instructor
Prof. Peter Sin

Time and Location
MWF 5, Online

Office Hours:
TBA

Description and Goals
This course is an introduction to the ideas of higher algebra, concentrating mainly on the theory of groups, with some theory of rings. Group theory is the mathematical study of symmetry. Students will become acquainted with the axiomatic approach. Many examples of groups will be used to illustrate the abstract concepts. Students will learn to read mathematics slowly and critically and, in so doing, will develop the ability to write careful accurate proofs of their own.

Textbook
Contemporary Abstract Algebra, 9th ed., by Joseph A. Gallian (Brooks/Cole Cengage learning).
You can also use the 8th edition, or the 7th. The assigned homework problem numbers will refer to the 9th ed.
With a few exceptions, the same problems can be found in the earlier editions, but with a few exceptions.

Class format
The class will be conducted synchronously by means of Zoom meetings at the scheduled times. All class announcements and
assignments will use the appropriate Canvas mechanisms. Please make sure you have an up-to-date version of Zoom. You will not need a camera
to attend the classes. Exams will also be given using Zoom, and you will need a camera for these.

It is not planned for any classes to be recorded, but there may arise exceptional circumstances in which recording would make sense. In that case, the following will apply.

Our classes may be recorded for students in the class to refer back and for enrolled

Our class sessions may be audio-visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voice recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials by students or any other party is prohibited.

Course Calendar

MAS4301Calendar

Software

Some examples and exercises in the text make use of GAP.

GAP is a free, top quality, open source package available for Windows, Mac OS X and Unix variants (including Linux). It can be downloaded from http://www.gap-system.org

It is not a course requirement to install and use GAP, but you will find it a good test of your understanding to try to explain the course material to a machine!

Web exercises

True/false problems on Gallian's website

Homework

The following list is the bare minimum. If you are aiming for
a top grade, you will probably want to try to work through all of the exercises
in the assigned chapters. (That's a lot of exercises but once you get the hang of it, you will find that you can do many of them very quickly.)

Ch.0: This chapter should be treated as prerequisite material. You should already
know this stuff. Review this chapter and do any exercises as needed to reinforce your undersanding of the basics.

Ch.1: 1,2,4,5,12,13,16.

Ch.2: 7,8,9,11,13,23,24,28,33,47,49.

Ch.3: 1,2,18,21,28,29,32,34,36.

Ch.4: 2,4,7,11,16,31,37,52.

Ch.5: 3,4,5,6,7,9,23,25,30,58.

Ch.6: 1,2,5,7,8,14,28,37,42,44.

Ch.7: 1,2,8,13,14,17,18,19,25,64.

Ch.8: 1,4,5,14,15,37,54.

Ch.9: 1,2,6,9,11,12,20,37,47,51.

Ch.10: 2,3,4,7,8,9,14,16,29,48,51.

Ch.11: 3,9,15,16.

Ch.12: 1,2,3,4,6.

Final Grades

There will be two in-class tests worth 20 points each, a final worth 40 points and homework assignments worth 20 points in total. The dates of the tests are given in the course calendar. No make-up exams will be given except for documented special reasons such as medical emergencies. Exams can be rearranged for student athletes only if I am notified at least four weeks in advance.

Sample exams

These samples are intended to help you understand the length and depth of exam questions and how to answer them to earn full credit.
Try to resist looking the solutions until you have tried your best to solve the problems, or you will gain little benefit from these samples.
If you are tempted to memorize the solutions you will be wasting your time, as none of the sample problems will appear on the actual exams.
It also probably means that you need to rethink your approach to learning higher mathematics. They are taken from a previous class
with 3 in-class exams. They are 50-minute exams. The first two should be useful for our two class exams, and the third
represents part of the material covered on the final.

sample for exam1
solution

sample for exam2
solution

sample for exam3
solution

Grading Scale

Grades: A=90-100, A-=87-89, B+=83-86, B=78-82, B-=75-77, C+=70-74, C=65-69, C-=60-64, D=50-59, E=0-49

If you think that a score has been **computed incorrectly**, please bring the matter to my attention within one day of your work being returned.

If you think that your work has been **graded incorrectly**, please submit an appeal in writing within seven days of your work being returned, explaining your reasons in detail. Appeals may result in a higher, unchanged, or lower score, depending on the merit of the appeal. Decisions on appeals are final. The final exam cannot be appealed.

The UF policy on attendance is here: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

Special accommodations

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting disability.ufl.edu/students/get-started . It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Honor Code

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code.
On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment."

The Honor Code (http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/)
specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obliged to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor of this class.

Course Evaluations

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.