



Abstract Algebra MAS4301/075A (Spring 2019)

Instructor

Prof. Peter Sin

Time and Location

MWF 4, Little 207

Office Hours:

T5,6 Little 362, and by appointment.

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 earlier editions). The assigned homework problem numbers will refer to the 9th ed, but most problems are also in the 8th ed. and you can find the corresponding 8th ed. numbers easily enough.

Course Calendar

[4301 Spring 2019 calendar](#)

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 should try to work through **all** of the exercises in the assigned chapters.

Ch.0: 4,9,10,11,17,19,35,58,63.

Ch.1: 1,2,4,5,12,13,18.

Ch.2: 7,8,9,11,13,15,19,21,23,24,28,33,46,47.

Ch.3: 1,2,18,21,28,29,32,34,36,46,47.

Ch.4: 2,4,7,11,18,31,37,52.

Ch.5: 3,4,5,6,7,9,23,25,30,42,55.

Ch.6: 1,2,5,7,8,14,28,37,42,57.

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

Ch.8: 1,4,5,14,15,37,54,75.

Ch.9: 1,2,6,9,11,12,20,37,47,51,65.

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

Ch.11: 3,9,15,16,19,23

Ch.12: 1,2,3,4,6,22,26,29,31.

Final Grades

There will be 3 tests each worth 30 points and homework assignments worth 10 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.

sample for exam1

solution

sample for exam2

solution

sample for exam3

solution

Grading Scale

Grades: A=90-100, B+=85-89, B=80-84, B-=75-79, 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 regulations on grades are here: <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

The UF policy on minus grades is here: <http://www.isis.ufl.edu/minusgrades.html>.

Attendance and Late Policy

Attendance is mandatory, except for absences allowed by UF policies. Late homework will not be accepted and will count as zero.

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

Special accommodations

Students requesting classroom accommodation must first register with the Dean of Student Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation.

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 feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

