

MAS 5307—GROUP, RINGS, AND VECTOR SPACES I

FALL 2018

INSTRUCTOR: Dr. Ettore Aldrovandi.

OFFICE: 215 LOV.

OFFICE HOURS: MW 10am–noon, and by appointment. See also the instructor's personal web page.

COURSE WEB PAGE: <https://www.math.fsu.edu/~ealdrov/teaching/2018-19/fall/MAS5307/index.html>

Schedule. Class will meet on Monday, Wednesday, Friday at 12:20–1:10 pm in LOV 200.

Prerequisites. Graduate standing, or permission by the instructor.

Text. The main reference will be:

Paolo Aluffi, *Algebra: Chapter 0*, Graduate Studies in Mathematics, Volume 104, American Mathematical Society.

As an additional textbook, the following:

Serge Lang, *Algebra*, Fourth Ed., Springer,

is a classic, and very well worth consulting. Many other possibilities exist, and students are encouraged to make appropriate use of the University Libraries and online resources.

Course Content. The topics to be covered are roughly as follows:

- Sets and categories (basic and advanced notions)
- Groups
- Rings and modules
- Irreducibility and factorization in integral domains (depending on time)

This list corresponds to the first five chapters of the book.

Course Objectives. The course focuses on advanced aspects of algebra. As part of a three-semester long sequence, the main objective of this course is to introduce students to a fully comprehensive view of the foundations of Algebra from a modern point of view.

The material to be covered in this course roughly corresponds the first half of the qualification exam in Algebra. Hence another main objective of this course is to fully prepare students for the Qualifier Exam.

Attendance and courtesy. Students are expected to attend class regularly. A student absent from class bears the full responsibility for all subject matter and information discussed in class. (See however below for more details about our global University Attendance Policy.) I expect you to be punctual, arrive on time for the class meetings, and pay attention and be engaged in class. Hence, *no electronics!* Put phones stay off or on silent, and stash them away. Same goes for laptops and tablets, unless used to take notes.

Grading. Your grading will be determined by your performance in three midterm exams and a final exam.

Grades will be given in the standard letter scale A, B, C, etc., including pluses and minuses, for all exams, as well as for the final cumulative course grade. All four exams (i.e. the three midterms and the final) will contribute to that grade, with the final carrying more weight than the three midterms. Here is an explanation:

The midterms, but especially the final, are going to be qualifier-level tests. Therefore a truly outstanding or anyway very good performance in the final will be taken as a serious indicator for granting an exemption

from the Qualifier Exam in Algebra. Hence, such an outstanding performance in the final will carry enough weight to determine a course grade compatible with such an exemption, therefore equal or higher than A-. Conversely, a relatively poor performance in the final can be offset by a relatively good one in the midterms, but not to the extent of granting a final grade compatible with the exemption, hence up to B+.

Homework. Homework will be assigned as a way of suggesting problems to work on, but it will not be graded—Students are expected to work out problems as part of their study routine, regardless of whether the problems are graded. An effort will be made to discuss some problems in class to illustrate the material, therefore you are encouraged to ask questions in class. It is reasonable to expect that students actively participate in these discussions.

Exams. There will be three midterm and a final exam. **Tentative** dates for the midterm exams are:

Midterm 1 – September 21, 2018

Midterm 2 – October 19, 2018

Midterm 3 – November 16, 2018

The **final exam** date is on Friday, Dec. 14, 7:30–9:30 am, same location as class meetings.

University Attendance Policy. Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holidays, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

Academic Honor Policy. The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to "...be honest and truthful and ...[to] strive for personal and institutional integrity at Florida State University." (Florida State University Academic Honor Policy, found at <http://dof.fsu.edu/honorpolicy.htm>.)

Americans With Disabilities Act. Students with disabilities needing academic accommodation should:

1. register with and provide documentation to the Student Disability Resource Center; and
2. bring a letter to the instructor indicating the need for accommodation and what type. This should be done during the first week of class.

This syllabus and other class materials are available in alternative format upon request. For more information about services available to FSU students with disabilities, contact the: Student Disability Resource Center

874 Traditions Way

108 Student Services Building

Florida State University

Tallahassee, FL 32306-4167

(850) 644-9566 (voice)

(850) 644-8504 (TDD)

sdr@admin.fsu.edu

<http://www.disabilitycenter.fsu.edu/>

Syllabus Change Policy. "Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice."