

**MAT 631 — INTRODUCTION TO ALGEBRA I
FALL 2015**

Instructor: Professor Graham Leuschke
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Lecture: TR 12:30–1:50, Carnegie 115
Office hours: MW 2:00–3:30, F 10:30–11:30, by appointment, and any time my door is open
Text: Dummit & Foote, *Abstract Algebra*, 3rd ed.; see also Artin, *Algebra*, 1st ed.

Course Description: This is the first course in a two-course graduate sequence. The topics covered will come from linear algebra and group theory.

Approximate syllabus:

Group Theory I	definitions and examples; homomorphisms and isomorphisms; subgroups; quotient groups; isomorphism theorems;	D&F Chapters 1, 2, 3
Vector Spaces	definitions and examples; bases; sums; linear operators; diagonalization	D&F Chapter 11 Artin Chapters 3, 4
Group Theory II	group actions; class equation; Sylow theory; groups of small order; free groups; generators and relations	D&F Chapters 4, 5
Bilinear Forms and Linear Groups	definitions; symmetric forms; Gram-Schmidt; hermitian forms; the Spectral Theorem; classical groups	Artin Chapters 8, 9

Homework: Homework will be assigned in class. Some problems will be assigned to be turned in and graded. You are encouraged to work together to solve the problems, but each person must submit their own writeup. Writing mathematics is an important skill to acquire and will be taken into consideration in the grading. Your solutions should be clear, concise, and complete. If something is obvious or trivial, you should say so, but be sure you aren't ignoring the crux of the problem.

Academic Honesty: The presumptive sanction for a first-time case of academic dishonesty is expulsion from the program. I will not tolerate homework copied from the web.

Exams: There will be one midterm exam during the semester, probably on Oct. 15, and a two-hour final exam, time and place to be announced.

Grading: Your grade will be based on homework, the midterm exam, and the final exam, equally weighted.

Students with Disabilities: If you believe that you need accommodations for a disability, please contact the Office of Disability Services (ODS), <http://disabilityservices.syr.edu>, located in Room 303 of 804 University Avenue, or call 315-443-4498 for an appointment to discuss your needs and the process for requesting accommodations. ODS is responsible coordinating disability-related accommodations and will issue students with documented disabilities Accommodation Authorization Letters, as appropriate. Since accommodations may require early planning and generally are not provided retroactively, please contact ODS as soon as possible. You are also welcome to contact me privately to discuss your academic needs although I cannot arrange for disability-related accommodations.

Academic Integrity: The Syracuse University Academic Integrity Policy holds students accountable for the integrity of the work they submit. Students should be familiar with the Policy and know that it is their responsibility to learn about instructor and general academic expectations with regard to proper citation of sources in written work. The policy also governs the integrity of work submitted in exams and assignments as well as the veracity of signatures on attendance sheets and other verifications of participation in class activities. Serious sanctions can result from academic dishonesty of any sort. For more information and the complete policy, see <http://academicintegrity.syr.edu>.

Religious observances policy: SU religious observances policy recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holidays according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or work requirements that may be missed due to are religious observance provided they notify their instructors before the end of the second week of classes. For fall and spring semesters, an online notification process is available through MySlice (Student Services -> Enrollment -> My Religious Observances) from the first day of class until the end of the second week of class.