

## 373K: ALGEBRAIC STRUCTURES I

Unique Number 54810

**Lecturer:** Alan Reid

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**Course Webpage:** [www.ma.utexas.edu/users/areid/373KSpring17.html](http://www.ma.utexas.edu/users/areid/373KSpring17.html)

**Office Hours:** W 12-2, Th 12:30-1.30 or by appointment.

**TA:** Richard Hughes

**TA email:** rhughes@math.utexas.edu

**Textbook:** *Algebra, Second Edition* by M. Artin.

**Prerequisites:** Either consent of Mathematics Advisor, or two of M341, 328K, 325K (Philosophy 313K may be substituted for M325K), with a grade of at least C-.

Students who receive a grade of C in M325K or M328K are advised to take M343K before attempting M373K.

**Grading:** There will be 2 Midterms each worth 100, a Final (based on all material in the course) worth 200 and Homework. Homework will be posted at the course webpage (see above) on a Thursday or Friday and is to be handed in at the following Thursday's class. Homework will be taken from Artin's book as well as additional questions that I will take from other sources.

**Late Homework will not be accepted.**

Each Homework will be graded (although not all Homework questions will be graded), and the best 10 will contribute 100 towards the final grade.

**The Midterms will be given during class.**

Midterm 1 will be on March 2nd and Midterm 2 on April 27th.

**The Final exam is on Tuesday May 16th, 9–noon.**

**THERE ARE ABSOLUTELY NO MAKE UP EXAMS**

Letter grades (with plus and minus grades) will be assigned at the end of the semester, and will depend on the overall performance of the class (i.e. there may be a "curve" at the instructors discretion).

**About the Course:**

This will be a rigorous course in pure mathematics. Students are expected to produce logically sound proofs and solutions to challenging problems. The syllabus for the course includes topics in the theory of groups and rings.

1. The group theory part will include the study of subgroups, quotient groups, homomorphisms, permutation groups, the Sylow theorems, and the structure theorem for finite abelian groups.

2. The topics in ring theory will include ideals, quotient rings, the quotient field of an integral domain, Euclidean rings, and polynomial rings.

In particular we will cover the following sections from Artin's book (not necessarily in this order): Chapter 2; Section 3.2; Sections 6.7–6.11; Chapter 7 (excluding 7.9 and 7.11); Chapter 11 (excluding 11.9); Sections 12.1–12.4; Section 14.7.

**Religious Observances:** By UT Austin policy, you must notify the instructor of your pending absence at least fourteen days prior to the date of observance of a religious holy day. If you must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, you will be given an opportunity to complete the missed work within a reasonable time after the absence.

**Students with disabilities:** Students with disabilities may request appropriate academic accommodations from the Division of Diversity and Community Engagement, Services for Students with Disabilities, 512-471-6259, <http://www.utexas.edu/diversity/ddce/ssd/> Please contact the instructor if this applies to you, so the necessary accommodations can be made.

**Other Information:** Counseling and Mental Health Center Student Services Bldg (SSB), 5th Floor, Hours: M–F 8am–5pm.

512 471 3515

512 471 CALL (crisis line)

[www.cmhc.utexas.edu](http://www.cmhc.utexas.edu)

Alan Reid