

Math 2303: Concepts in Algebra

Course Syllabus

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Prerequisites: MATH 1312 or 1313. May not apply to course or gpa requirements for a major or minor in natural sciences and mathematics (not approved for core curriculum math course). Mathematical systems: classical and abstract algebra, systems of numeration, and basic number theory.

Textbook: The learning materials for Math 2303, including the textbook, are found online on the CourseWare site at www.casa.uh.edu. Students are required to purchase an access code at the Book Store to access the course learning materials (first two weeks CASA website will be open and then the ACCESS CODE must be entered to have the course materials to be available).

The information contained in this class outline is an abbreviated description of the course. Additional important information is contained in the departmental policies statement at:

<http://www.mathematics.uh.edu/undergraduate/courses/math13xx>, and your instructor's personal webpage. Even though this class is a 23XX class it still follows the 13xx policies except there is no Course Policy Quiz, no prerequisite exam, only has 3 regular exams and final.

Learning Objectives

A student who completes this course should be proficient in the following topics: a short history of written numerals, systems of measurement, the real number field and its properties, basic number theory of primes, divisors and multiples, expressions and equations, the definition of a function, linear and quadratic functions and an introduction to abstract algebraic systems.

A student in this class is expected to complete the following assignments:

3 Regular Exams

3 Practice Tests (on each exam up to 10 points, 10 % of highest practice test scores)

Homework assignments over most of the sections covered in class.

Online Quizzes that will be available on the CASA website under the Online Assignment Tab.

Poppers – online class format will have poppers submitted online on the CASA website and details will be explained by instructor

1 Final Exam

Homework	10%
Poppers	10%
Quizzes	10%
3 Semester Tests	48% (16% each)
Final	22%
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Total	100%

List of discussion/lecture topics

Chapter 1 Counting and Measuring

- Section 1.1 Systems of Numerations and Additive Systems
- Section 1.3 Place Value Systems of Numeration
- Section 1.4 Place Value Systems in Other Bases
- Section 1.5 Arithmetic in Other Bases
- Section 1.6 Systems of Measurement
- Section 1.7 Dimensional Analysis

Chapter 2 Real Numbers and their Properties

- Section 2.1 Introduction to Number Theory
- Section 2.2 Integers
- Section 2.3 Rational Numbers
- Section 2.4 Exponents and Scientific Notation
- Section 2.5 Irrational Numbers
- Section 2.6 Radicals
- Section 2.7 Real Numbers
- Section 2.8 Properties of Real Number Operations

Chapter 3 Equations and Inequalities

- Section 3.1: Variables, Expressions and the Order of Operations Rule
- Section 3.2: Equations and Inequalities
- Section 3.3: Solving Equations
- Section 3.4: Using a Scientific Calculator (* Self-Study, not covered in class)
- Section 3.5: Using Formulas
- Section 3.6: Solving Problems using Equations
- Section 3.7: Solving Inequalities

Chapter 4 Graphing Lines and Inequalities

- Section 4.1: Graphing Linear Equations
- Section 4.2: Writing Equations of Lines

Chapter 5 Functions

- Section 5.1: Functions, Domains and Ranges
- Section 5.2: Linear Functions and Modeling
- Section 5.3: Factoring
- Section 5.4: Solving Quadratic Equations by Factoring
- Section 5.5: Solving Quadratic Equations using Square Roots
- Section 5.6: Solving Quadratic Equations using the Quadratic Formula
- Section 5.7: Solving Problems using a Quadratic Equation
- Section 5.8: Graphing Quadratic Functions

Chapter 6 Systems of Equations and Systems of Inequalities

- Section 6.1: Systems of Equations
- Section 6.2: Solving Systems of Equations by Substitution
- Section 6.3: Solving Systems of Equations by Elimination and Solving Problems using Systems of Equations
- Section 6.4: Solving Systems of Inequalities (*Optional)

Course quizzes with sections covered:

Quiz 1: Sections 1.1, 1.3 & 1.4	Test 1
Quiz 2: Sections 1.5 -1.7	Test 1
Quiz 3: Sections 2.1 & 2.2	Test 1
Quiz 4: Section 2.3	Test 2
Quiz 5: Sections 2.4, 2.5 & 2.6	Test 2
Quiz 6: Sections 2.7, 2.8 & 3.1	Test 2
Quiz 7: Sections 3.2 & 3.3	Test 2
Quiz 8: Sections 3.5, 3.6 & 3.7	Test 2
Quiz 9: Sections 4.1, 4.2 & 5.1	Test 3
Quiz 10: Sections 5.3, 5.4 & 5.5	Test 3
Quiz 11: Sections 5.6, 5.7 & 5.8	Test 3
Quiz 12: Sections 6.1, 6.2 & 6.3	Test 3

Test 1 dates are 9/17, 9/19 & 9/20

Test 2 dates are 10/22, 10/24 & 10/25

Test 3 dates are 12/1, 12/2 & 12/3

Final Exam dates are 12/10 and 12/12

Students who live more than 100 miles from campus qualify for distance testing. Students who live closer than 100 miles will test in CASA Testing Center 221A Garrison Gym on the University of Houston Campus. Distance students need to look for a testing location Community Colleges or Libraries. Distance Education at University of Houston administer the test not taken in CASA. The procedure to get distance testing set-up is to email your professor and then go to <http://www.uh.edu/distance/student-resources/proctoring/exam-form/> and fill out the form.

Students testing in CASA Testing Center will use the online calculator which is available on the Course Page on the CASA Website so be sure to practice. Students testing in CSD or distance must provide a non-graphing calculator.

CSD ACCOMMODATIONS

A current Student Accommodation Form (SAF) must be presented in a timely manner for accommodations to be approved. No retroactive accommodations will be provided. Accommodations for undergraduate mathematics courses that could change the essential nature of the course or provide an unfair advantage to one student over another student will not be approved. Notably, in the event that calculators and/or formula sheets are allowed for all students in a course, then all students may have them. If, however, calculators and/or formula sheets are not allowed to anyone, then no one may have them. Accommodations that are listed on your SAF that would NOT change the essential nature of a course or provide an unfair advantage may be approved (e.g. an extra set of class notes for lecture, testing at CSD, extended time*. Please review these with your teacher during the conference hours for the class (not immediately before or after a lecture).

*If you run over the agreed upon extended time you will be penalized in proportion to the amount over.