



U3600-109: Algebra for Calculus

Course Format: Online

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Course credits: 4

Prerequisites: Completion of 2 years of high school Algebra and 1 year of high school Geometry with a C or better or the equivalent. Appropriate for advanced high school students; First-year or higher college students.

Course Description: The study of the properties of elementary functions, such as polynomial, absolute, radical, rational, exponential, and logarithmic functions. Topics include equations, inequalities, functions, and their graphs. Students will formulate, analyze, solve and interpret mathematical and real-world problems. Student work will be completed in an open-source homework platform through the online learning management system (LMS) as well as some paper assignments to be scanned and submitted electronically to the LMS. A mix of figures, video lectures, examples, and help is available to assist students in the course. Throughout the course, students will have opportunities to have video conversations with the course facilitator. Students will work with the course facilitator to create a customized learning plan to create a path toward course completion. In this problem-based quantitative course, students will have the opportunity to communicate and collaborate with other students in the course. Students are given opportunities for extra credit. The course is intended to provide the algebra skills for calculus.

Required Course Materials

- [OpenStax College. \(2021\) College Algebra 2e. OpenStax](#)
- Scientific calculator

Optional/Recommended Course Materials

- Graphical Calculator

Hardware Requirements

You will need a webcam, speakers, and a microphone. You will complete your exams through an online proctor, requiring all three components.

Course Learning Objectives

- Identify and interpret properties of linear, polynomial, piecewise and absolute value, exponential, logarithmic, rational, and radical functions given in the analytic or graphical form. Features include, but are not limited to, domain, range, intercepts, real and complex zero, end behavior, and asymptotes.
- Solve equations and inequalities involving elementary functions (polynomial, absolute, radical, rational, and radical functions) graphically, analytically, and linear systems of equations.
- Analyze, construct, and solve equations and inequalities arriving from applied problems that can be modeled by elementary functions and interpret the results.
- Use functions operations, including compositions and inverses, to create new functions.
- Students will analyze the relationships between the original and the resulting functions using analytic and graphical techniques

Course Overview

UNIT #	UNIT TOPIC	EVALUATED ACTIVITIES
Unit 1	Review Material	WebWork Homework Assignments
Unit 2	Equations and Inequalities	WebWork Homework Assignments; WebWork Unit 2 Quiz
		Math Mystery 1
Unit 3	Functions	WebWork Homework Assignments; WebWork Unit 3 Quiz
		Term Exam 1
Unit 4	Linear Functions	WebWork Homework Assignments; WebWork Unit 4 Quiz
		Math Mystery 2
Unit 5	Polynomial and Rational Functions	WebWork Homework Assignments; WebWork Unit 5 Quiz
		Term Exam 2
Unit 6	Exponential and Logarithmic Functions	WebWork Homework Assignments; WebWork Unit 6 Quiz
		Math Mystery 3
Unit 7	Systems of Equations	WebWork Homework Assignments; WebWork Unit 7 Quiz
		Term Exam 3
		Final Exam

Evaluation Methods

Your final grade will be based on your performance on the following:

Task	Number of Items	Individual Item Percentage	Total Percentage
WebWork Homework	37	~0.54%	20%
WebWork Unit Quizzes	Best 5 of 6	4%	20%
Math Mysteries	3	5%	15%
Term Exams	3	10%	30%
Final Exam	1	15%	15%

WebWork Homework (20%)

The WebWork assignments are completed online through links embedded in the LMS. Students complete assignments on 7 unit modules organized in the LMS in the order they should be completed. Every problem can be attempted until it is fully correct.



WebWork Unit Quizzes (20%)

The WebWork Unit Quizzes can be found at the end of the corresponding unit module in the LMS for each module excluding the review module. Each quiz can be attempted a maximum of 3 times of which the best attempt will be kept. There are a total of 6 quizzes, and the top 5 will be included in the Final grade.

Math Mysteries (15%)

The Math Mysteries are assignments that can be found in the course's LMS. These are written assignments that will be worked out by hand and uploaded to the LMS. Feedback will be provided via written comments on the submission file and in the LMS comment system. They also have a pre- and post-discussion about the activity.

Term Exams (30%)

There are 3 Term Exams following Units 3, 5, and 7. They are completed online through a proctoring system. They contain 10 questions that are to be completed in a 90-minute window. They are each worth 10% of the final grade. You can upload your scratch work for possible partial credit as part of the exam.

Final Exam (15%)

The Final Exam is cumulative. It is completed online through the same proctoring system as the term exams. You have 120 minutes to complete the 15 questions that comprise the final exam. It is worth 15% of the final grade, and your scratch work can be uploaded for possible partial credit.

Math Chats

At the end of every unit is a discussion board that you will use to do one of the following: ask a question about the corresponding unit's material, answer a question posed by another student, or reflect on an article related to mathematics that is linked in the discussion board. Each chat has a different article.

Extra Credit: Exam Corrections

For every term exam, students can complete corrections of the problems they did not get full credit on. Doing so will earn 30% of the points they had lost. For example, if a student scores a 60% and completes their corrections, they would earn 12% back bringing their exam score to 72%.

Extra Credit: Video Lessons

Students have an opportunity to create video lessons explaining topics from Units 2 – 7. These videos are to be approximately 5-10 minutes in length. Each video will earn the student 1% extra credit up to a maximum of 5%.

Exam Method: Online with Proctoring

This course requires all students to complete exams online with a proctoring service. Students receive one attempt on each exam. The exams must be completed without the use of books or any other online reference material (e.g. google, wolframalpha, etc.). However, students are allowed one-sided note sheet on 8.5x11 paper to use during the exam (each exam can have different note sheets). The Final exam note sheet can be two-sided.



Grading Scale

The following grading scale is used to evaluate all course requirements and determine your final grade:

A = 93–100	B = 83–87.9	C = 70–77.9	D = 60–69.9
AB = 88–92.9	BC = 78–82.9		F = Below 60

Pass/Fail Option

Students who enroll in an Independent Learning (IL) course under the pass/fail option will receive a final grade of S in place of a final grade equivalent to an A, AB, B, BC, or C and a final grade of U in place of a final grade equivalent to a D or F.