MAT 1340 & MAT 0340

COMMUNITY **COLLEGE** of AURORA

College Algebra (GT-MA1)

Spring 2026

Days:*M-F*
Time: *8:24a-9:24a/ 8:24a-9:29a(R)-Every other (R)*

Room 106

INSTRUCTOR INFORMATION

Mr. Kenneth Boakye	**Phone:** 720-424-9578 **Office:** Room 106 **Office Hours:** By Appointment **Email:** kenneth_boakye@dpsk12.net **Best way to contact me:** kenneth_boakye@dpsk12.net

WHAT TO EXPECT FROM THIS CLASS

This class is a gateway to the Precalculus course, which serves as the gateway to the classical Calculus sequence. Mastery of this course can lead you into understanding mathematical concepts that are ubiquitous in more applications than we can name.

COURSE INFORMATION

General Information	**Course and Section Number:** MAT 1340 **Day(s):** M/T/W/R/F. **Times:** *8:24a-9:24a(M/T/W/F)--8:24a-9:29a(R).* **Room:** 106
Course Description	Focuses on a variety of functions and the exploration of their graphs. Topics include equations and inequalities, operations on functions, exponential and logarithmic functions, linear and nonlinear systems, and an introduction to conic sections. This course provides essential skills for Science, Technology, Engineering, and Math (STEM) pathways. This is a statewide Guaranteed Transfer course in the GT-MA1 category.
Course Prerequisite(s)	Successful completion of <u>MAT 0300</u> (grade C or better) or appropriate placement scores (ACTM23+, S12 560+, Accuplacer Next Gen AF 245+,or other placement methods available at the time of registration)
Credit & Contact Hours	**Credit:** 4 **Contact Hours:** 60

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Room 106

Important Dates	**Date Course Begins:** **January 06, 2026** **Last Date to Drop With a Refund:** **Feb. 09, 2026** **Last Date to Withdraw ("W" Grade, No Refund):** **Apr 29, 2026** **Date Course Ends:** **May 29, 2026** *It is the student's responsibility to contact their high school CE counselor to request to be withdrawn from a class.* **Days where class does not meet:** Jan.19, 2026; Feb.16, 2026; Feb. 27, 2026; Mar. 19, 2026; Apr. 16,2026; May 1, 2026, May 25, 2026; **Spring Break: Mar. 30 - Apr. 3, 2026**
Course Materials	**Textbook:** College Algebra 9th Ed. **Author:** Michael Sullivan **ISBN:** 978-0-321-71681-1 **ADDITIONAL MATERIALS & NECESSITIES:** ● Active **Schoology** Account ● **Calculator:** A graphing calculator will be required for use in this course, when/if necessary. ● Google Drive ● Inspiration ● Motivation ● Curiosity
COF	If you are a Colorado resident and did not sign-up for the Colorado Opportunity Fund (COF) through your CCA admissions application, you will need to sign-up online. The COF application is free and is a one time application that covers costs associated with taking undergraduate courses, but you need to authorize COF each semester. The application can be found online at https://cof.college-assist.org/. Students that do not fill out the COF application will be required to personally pay for course costs.
COURSE POLICIES	
Attendance	Nearly **perfect** attendance for this course is necessary to achieve a satisfactory grade. When/If you need to be absent during our scheduled class time, be sure to "check in" with me as early as the day before you plan to miss class.
Homework Quizzes/Exams Projects Late Work Extra Credit	**Your presence is valued, and it is critical to establishing a learning community as much of the learning that takes place will be a shared experience where we all benefit from one another's ideas. However, life happens**. If you know you will be absent, please meet with me prior to the absence so that we can plan together what you can do to keep up with the assignment(s) for that class period. If you miss a class due

MAT 1340 & MAT 0340

College Algebra (GT-MA1)

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Spring 2026

Room 106

Electronic Devices	to unforeseen circumstances, reach out to me as soon as possible so that we can create a plan of action to make up for any missed work from that class period.
	Deadlines for Make-Up Work:
	• All assignments and plans are posted on Schoology, so if you are absent, please make every effort to be ready for the NEXT DAY of class when you return. **However, confusion is welcome. Reach out if you need guidance about missed work**.
	Make-Up Work Policy/Score Recording:
	• If students do not submit assignments by deadline, scores will be recorded as "Missing" which counts as 0's in the gradebook, even if due to an excused absence. This is not intended to be punitive; rather, it is informative. This way, students clearly know what work they have to complete and submit. Once the missed assignment is submitted, the 0 will be replaced with a grade that reflects mastery, without penalty.
	Late Work Policy:
	• Students have the opportunity to make up exams and assessments for up to 48 hours and still earn 90% of the possible points. **Please let me know if you suspect that your assignment will be late. That way, we can work together on a timeline for submission.**

Grading/Evaluation	Each students grade will be determined from the following scales

Percentage	Grade
90-100%	A
80-89%	B
70-79%	C
60-69%	D
Below 59%	F

Points will be earned from the following assignments:

Assignment	Quantity	Total Points /assignment	Points per Assignment	Percentage of Grade
CCA Aligned Department Assessments	1 Final Test	100 points	100 points	90%
Homework (Process)	16 Homework Assignments	160 points	10 points	10%
Quizzes(product)	7 Quizzes	700 points	100 points	
Hourly Exams(Product)	7 Exams	700 points	100 points	

MAT 1340 & MAT 0340

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Room 106

Success in the Classroom Environment and Expectations	Be respectful of the learning environment. ● Use **positive** language. ● Keep your cell phones out of sight. ● Food is to be eaten in the cafeteria. Snacks can be eaten in the classroom only when you are given verbal permission. ● ALWAYS participate in the class discussion.

HOW TO BE SUCCESSFUL IN THIS CLASS	
How to Come to Class Prepared	Be sure to read the material of the lesson at least one day before the lesson is to be given.
What to Do During & After Class	You are expected to verbally communicate the ideas that we cover in the course. That means that our verbal interaction has to be consistent with the given topic of note. Always be prepared to take notes, and to write your reasoning, clearly, whenever prompted to do so.
What to Do if You Miss Class	**If you miss class, consult your resources IN THIS ORDER:** 1. Schoology to access agendas and materials 2. Trustworthy classmates for clarification 3. Deltamath for Assignments 4. Instructor for clarification only after you have exhausted other resources.
Where You Can Get Help Outside Class	**How I can help you:** I am always at your service during school hours. If you need to stay after school for additional help, I am available. **How you can help yourself:** Always ask questions for clarity, (assuming that you have reviewed the material of the given topic that is being covered, or has been covered.) **How your classmates can help you:** Be instrumental in forming study groups for yourselves. I can help organize your study group if it is necessary.

TENTATIVE SCHEDULE	

Week	Date	Topics covered during the week	Assignments Due
Week 1	**1/6 – 1/9**	**Ch. 1-Functions** A. Definition of a function B. Identifying functions given table, graph or equation form C. Domain and range of algebraic functions D. Even and odd functions	**Quiz 1/ Assignment 1**

MAT 1340 & MAT 0340

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Spring 2026

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Room 106

Week	Date	Topics covered during the week	Assignments Due
Week 2	1/12 – 1/16	E. Introduction to where functions are increasing and decreasing using a graph F. Introduction to maxima and minima using a graph **Ch. 2-Function Notation** A. Functions expressed using function notation B. Evaluation of function notation from equations and graphs	**Assignment 2/ Exam 1**
Week 3	1/20–1/23	**Ch. 3-Inverse of a function** A. Notation of an inverse function B. Definition of one-to-one functions C. Algebraic determination of the inverse of a function D. Graphical properties of an inverse function E. Domain and range of an inverse function	**Assignment 3/Quiz2**
Week 4	1/26–1/30	**Ch. 4-Function composition algebraically** A. Sum difference, product, quotient of functions B. Composition notation C. Inverses using composition D. Composition of two functions	**Assignment 4/Exam 2**
Week 5	2/2–2/6	**Ch. 5-Behavior and roots of polynomial functions** A. End behavior of polynomial functions B. Division of polynomials C. Polynomials as a product of linear factors E. Multiplicity of zeros F. Complex zeros	**Assignment 5/Quiz 3**
Week 6	2/9–2/13	**Ch. 6-Rational and absolute value equations and inequalities** A. Completing the square to find the vertex form of a quadratic function B. Absolute value inequalities C. Polynomial and rational inequalities using test intervals (critical values, number lines)	**Exam 3/ Assignment 6**
Week 7	2/17–2/20	**Ch.7 - Analysis of polynomial, exponential, logarithmic and rational functions** A. Intercepts and End behavior B. Zeros C. Definition of exponential and logarithmic functions D. Domain and range	**Assignment 7/Quiz 4**
Week 8	2/23–2/26	E. Evaluation of exponential and logarithmic expressions F. Introduction to the number e G. Equations of asymptotes	**Assignment 8/ Exam 4**
Week 9	3/2–3/6	**Ch. 8 - Graphs of polynomial, exponential, logarithmic and rational functions** A. Intercepts and end behavior B. Asymptotes of functions from the equation and from the graph	**Assignment 9/Quiz 5**

MAT 1340 & MAT 0340

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Spring 2026

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Room 106

Week	Date	Topics covered during the week	Assignments Due
Week 10	**3/9–3/13**	**Ch. 9- Solutions of exponential and logarithmic equations** A. Conversion between exponential and logarithmic form B. Properties of logarithms C. Logarithmic equations D. Extraneous solutions E. Exponential equations	**Assignment 10/ Exam 5**
Week 11	**3/16–3/20**	**Ch. 10 - Piecewise functions** A. Notation for piecewise functions B. Evaluation of piecewise functions C. Graphs of piecewise functions D. Domain of piecewise functions	**Assignment 11/Quiz 6**
Week 12	**3/23–3/27**	**Ch. 11- Parent functions and their transformations** A. Parent (also called base/toolbox) functions B. Rigid transformations (horizontal/vertical translations and reflections)	**Assignment 12/ Exam 6**
Week 13	**4/6–4/10**	**Ch.12 - Algebraic techniques to solve application problems** A. Quadratic models including optimization B. Exponential/logarithmic models	**Assignment 13/Quiz 7**
Week 14	**4/13–4/17**	C. Working Together, Mixtures, etc **Ch. 13 - Systems of equations** A. Methods for solving systems with three variables or more	**Assignment 14/ Exam 7**
Week 15	**4/20–4/24**	B. Binomial Theorem	
Week 16	**4/27–5/1**	C. Conic Sections	**Assignment 15**
Week 17	**5/4-5/8**	D. Systems of nonlinear equations with two variables	**Assignment 16**
Week 18	**5/11-5/15**	**Revision**	
Week 19	**5/18-5/22**	**Revision**	**Final Exam**

COLLEGE WIDE POLICIES	

Syllabus Addendum	All college wide policies, including information on Accommodations, Site Emergencies, Anti-Discrimination, Inclusive Excellence, Student Support, Email, and D2L can be found on the syllabus addendum: CCA CE Syllabus Addendum.

COLORADO COMMUNITY COLLEGE SYSTEM COURSE REQUIREMENTS

Course Learning Outcomes	1. Identify properties of functions including domain, range, increasing and decreasing. 2. Apply function notation. 3. Determine the inverse of a function. 4. Examine functions algebraically. 5. Analyze behavior and roots of polynomial functions. 6. Solve polynomial, rational and absolute value equations and inequalities. 7. Analyze polynomial, exponential, logarithmic and rational functions. 8. Create graphs of polynomial, exponential, logarithmic and rational functions. 9. Solve exponential and logarithmic equations. 10. Analyze piecewise functions. 11. Graph parent functions and their transformations. 12. Utilize algebraic techniques to solve application problems. 13. Solve systems of equations. 14. Classify conic sections.

Topical Outline	I. Functions including domain, range, increasing and decreasing
	     a. Definition of a function
	     b. Identifying functions given table, graph or equation form
	     c. Domain and range of algebraic functions
	     d. Even and odd functions
	     e. Introduction to where functions are increasing and decreasing using a graph
	     f. Introduction to maxima and minima using a graph
	 II. Function notation
	     a. Functions expressed using function notation
	     b. Evaluation of function notation from equations and graphs
	 III. Inverse of a function
	     a. Notation of an inverse function
	     b. Definition of one-to-one functions
	     c. Algebraic determination of the inverse of a function
	     d. Graphical properties of an inverse function
	     e. Domain and range of an inverse function
	 IV. Function composition algebraically
	     a. Sum difference, product, quotient of functions
	     b. Composition notation
	     c. Inverses using composition

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Room 106

      d.   Composition of two functions

V.   Behavior and roots of polynomial functions
- a.   End behavior of polynomial functions
- b.   Division of polynomials
- c.   Polynomials as a product of linear factors
- d.   Multiplicity of zeros
- e.   Complex zeros

VI.   Polynomial, rational and absolute value equations and inequalities
- a.   Completing the square to find the vertex form of a quadratic function
- b.   Absolute value inequalities
- c.   Polynomial and rational inequalities using test intervals (critical values, number lines)

VII.   Analysis of polynomial, exponential, logarithmic and rational functions
- a.   Intercepts and End behavior
- b.   Zeros
- c.   Definition of exponential and logarithmic functions
- d.   Domain and range
- e.   Evaluation of exponential and logarithmic expressions
- f.   Introduction to the number e
- g.   Equations of asymptotes

VIII.   Graphs of polynomial, exponential, logarithmic and rational functions
- a.   Intercepts and end behavior
- b.   Asymptotes of functions from the equation and from the graph

IX.   Solutions of exponential and logarithmic equations
- a.   Conversion between exponential and logarithmic form
- b.   Properties of logarithms
- c.   Logarithmic equations
- d.   Extraneous solutions
- e.   Exponential equations

X.   Piecewise functions
- a.   Notation for piecewise functions
- b.   Evaluation of piecewise functions
- c.   Graphs of piecewise functions
- d.   Domain of piecewise functions

XI.   Parent functions and their transformations
- a.   Parent (also called base/toolbox) functions
- b.   Rigid transformations (horizontal/vertical translations and reflections)

XII.   Algebraic techniques to solve application problems
- a.   Quadratic models including optimization
- b.   Exponential/logarithmic models

XIII.   Systems of equations
- a.   Methods for solving systems with three variables or more
- b.   Systems of nonlinear equations with two variables

XIV.   Conic sections
- a.   Circle
- b.   Parabola

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Room 106

Recommended Topical Outline	
	c. Ellipse d. Hyperbola

Recommended Topical Outline	I) Function notation
	    a) Difference quotient
	II) Function composition algebraically
	    a) Domain of a composite function
	    b) Decomposition of a function
	III) Behavior and roots of polynomial functions
	    a) The Rational Root Theorem
	    b) The Remainder Theorem and the Factor Theorem
	IV) Polynomial, rational and absolute value equations and inequalities
	    a) Methods of solving quadratic equations
	    b) Solving equations reducible to quadratic form using substitutions
	    c) Review of solving rational equations
	V) Graphs of exponential, logarithmic and rational functions
	    a) Identifying the removable discontinuities of a rational function
	    b) Determining if a graph crosses horizontal asymptotes
	VI) Exponential and logarithmic equations
	    a) Change of base formula
	VII) Algebraic techniques to solve application problems
	    a) Direct and inverse variation
	VIII) Systems of equations
	    a) Types of solutions (consistent, inconsistent, independent and dependent)
	IX) Conic sections
	    a) Analysis of the properties of conic sections

Student Learning Course Map (College Algebra MAT 1340)

Course-Level Student Learning Outcomes and GT Pathway Competency	Course Assessments
1. Identify properties of functions including domain, range, increasing and decreasing intervals. Also, analyze piecewise defined functions.	Assignment #1 and #2/Quiz 1/Exam 1.
2. Apply function notation and determine the inverse of a function.	Assignment #3/Quiz 2

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Room 106

3.	Examine functions algebraically.	Assignment #4/Quiz 3
4.	The Binomial Theorem. Analyze behavior and roots of polynomial functions. Solve Polynomial equations.	Assignment #5/#6/Quiz 4/Exam 2
5.	Solve rational and absolute value equations and inequalities. Also, solve exponential and logarithmic equations	Assignment #7/#8/Quiz 3/Exam 3
6.	Analyze exponential, logarithmic and rational functions.	Assignment#9/#10/#11 /Quiz 4/Quiz 5/Exam 4
7.	Analyze and graph parent functions and their transformations.	Assignment #12/Quiz 6
8.	Utilize algebraic techniques to solve application problems	Project #1: Using a catapult, scholars will make slingshots to a given target, record the distance covered and time of the projectile motion and write equations to model the projectile path. (Exam 5)
9.	Solve systems of equations and inequalities in two or three variables	Assignment #13/#14/Exam 6
10.	Classify Conic Sections	Assignment #15/#16/Quiz 7/ Exam 7/Finals

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