COMMUNITY COLLEGE

COURSE SYLLABUS

Course Details

Course Name	College Algebra Online.
Course CRN and Term	41081 – Spring, 2021
GT Pathways Category	GT-MA1
Credits and Delivery Method	4 credits, online.
Time Expectation	12 hours per week
Location	Online
Meeting Dates and Time	TBA
Instructor	Harry S. Mills
Instructor E-mail	hmills1@online.aims.edu
Instructor Office Location Instructor Phone Number	EDBH 134K
Office Hours	1-on-1 or group ZOOM by appointment, pending student input. Online courses seek to accommodate odd schedules, so fixed hours serving the majority are problematic. For time-sensitive matters, please call 970-290-0550.
The drop deadline for this course is	January 27th, 2021. Your ability to add courses after this date may be limited. See your advisor for assistance with class scheduling.
The course withdrawal date for this course is	April 7th, 2021 Remember, withdrawal does not come with any reductions or refunds in tuition. A withdrawal will also place a "W" grade on your transcript. Please contact your advisor to see if a withdrawal is appropriate given your specific situation.
Other Important Dates	https://www.aims.edu/student/schedule/calendars/ https://harryzaims.com/121-online/121-online-spring-21/syllabus-and-schedule/
Student Services	https://www.aims.edu/student/services.php

Course Requirements

Prerequisite(s)	College-level readiness as determined by review of high school transcripts, assessment, and/or meeting with an Aims Academic Advisor. Four credits.
Co-requisite(s)	None
Standards of Behavior & Policies – These statements apply to every course at Aims Community College and are hereby incorporated into this document.	Closely review these policies at: https://www.aims.edu/policies/standard-syllabus/

COMMUNITY COLLEGE

COURSE SYLLABUS

Materials	There are options for acquiring the required access to Pearson's MyMathLab: Purchase the MyMathLab Standalone Access Card from the bookstore: 9780321199911 OR Go to https://mlm.pearson.com/northamerica/ and purchcase directly from the vendor. This gives you the option of the free trial. This may be more difficult to engineer using financial aid.
Other	This box is for any specific requirements for your course such as scrubs, safety glasses, steel-toed boots, etc.

COMMUNITY COLLEGE

COURSE SYLLABUS

Course Information

Course Description:

Course Learning Outcomes – According to the Colorado Community College Common Course Database, upon completion of this course, the student/learner should be able to:

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 – These topics will be covered in class, but not necessarily in this order:

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
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)
c) Non-rigid transformations (horizontal/vertical scaling)
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 non-linear equations with two variables
XIV) Conic sections

a) Circle
b) Parabola
c) Ellipse
d) Hyperbola

State General Education and Common Learning Outcomes: (for GT Pathways Courses)

Competency: Quantitative Literacy:
Students should be able to:

1. **Interpret Information**
    a. Explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words).
2. **Represent Information**
    a. Convert information into and between various mathematical forms (e.g., equations, graphs, diagrams, tables, words).
3. **Perform Calculations**
    a. Solve problems or equations at the appropriate course level.
    b. Use appropriate mathematical notation.
    c. Solve a variety of different problem types that involve a multi-step solution and address the validity of the results.
4. **Apply and Analyze Information**
    a. Make use of graphical objects (such as graphs of equations in two or three variables, histograms, scatterplots of bivariate data, geometrical figures, etc.) to supplement a solution to a typical problem at the appropriate level.
    b. Formulate, organize, and articulate solutions to theoretical and application problems at the appropriate course level.
    c. Make judgments based on mathematical analysis appropriate to the course level.
5. **Communicate Using Mathematical Forms**
    a. Express mathematical analysis symbolically, graphically, and in written language that clarifies/justifies/summarizes reasoning (may also include oral communication).
6. **Aims Common Learning Outcomes** – These outcomes define the expectations of an Aims Community College education and provide the benchmarks against which the college holds itself accountable. Find the outcomes at

https://www.aims.edu/prospective/common-learning-outcomes.php

Course Delivery Method

Online. When/if COVID-19 restrictions are lifted, testing at an approved testing center, for quality control purposes, will be implemented.

Schedules and delivery methods are subject to change as necessary due to inclement weather, health and safety issues, and other circumstances. For the latest information on College decisions related to course delivery, visit www.aims.edu

Code of Conduct

In an effort to keep our college community safe, students are expected to comply with health guidelines as directed by the College, public health officials, and/or ordinance of a municipality, county, Governor of the State of Colorado or any Executive Order of the President of the United States. A complete copy of the Student Code of Conduct can be found at www.aims.edu/student/conduct.

Face Coverings

To help mitigate the transmission of COVID-19, it is required that all students wear masks or other face coverings in classrooms, laboratories and other similar spaces where in-person instruction occurs. The masks/face coverings must cover both nose and mouth, be worn for the duration of class, inside all college buildings, and outside whenever you are or are likely to come within 6 feet of another person. Students who do not comply with face covering and social distancing expectations will be asked to leave class and referred to the Dean of Students. We are a community of care and together we will work to ensure we can all engage in learning in the safest way possible.

Reuse of Instructional Materials

Reuse or distribution of instructional materials (i.e. PowerPoints, videos, class recordings, assessments, etc) or student created content (i.e. online discussion posts, presentations, etc) without approval is prohibited.

- **Attendance** – Attendance will be measured by student's progress on assigned activities. It will show up in student's timely performance on homework, writing projects and tests. If you're not putting in the necessary time (12 hours per week, recommended), it will be revealed by your performance, so there is no separate category for attendance.

- **Communication and Feedback**
  The primary means of communication is e-mail *through the Course Shell* on https://online.aims.edu. Use the E-Mail link in the Main NavBar. In most courses, it's called "Classlist." The link for my courses is called "E-Mail." Student e-mails are always answered within 24 hours. I clean out my inbox before end-of-work every day.

  For HOMEWORK questions, use the "Ask My Instructor" link on the MyMathLab. This will provide me with a link that takes me straight to the exercise in question.

  IMPORTANT: Please change your e-mail settings to "Include previous message in replies," else I will likely not know what you're talking about. When I encounter this, I will reply with "What are we talking about?" This is important enough to be worth 10% of your grade. Due Week 1.

  Feedback on student work will be through the MyMathLab, primarily. Early-Bird writing projects will be graded, in detail, by hand. Non-Early-Bird submissions may or may not receive personal attention, inasmuch as I post the solutions by the Monday before the test. Max learning from Writing Projects goes to the Early Birds. Others, not so much, although poor work AFTER solutions are available is likely to be graded in some detail.

- **Grading**
  Exams: 60%
  Homework: 20%
  Writing Projects: 10%
  Include Previous Message in Replies E-Mail setting: 10%

Grading Scale

90% - 100%	A	(Superior and excellent)
80% - 89%	B	(Above average)
70% - 79%	C	(Average)
60% - 69%	D	(Below average level of achievement)
Below 60%	F	(Not acceptable)

- **Course Schedule**: https://harryzaims.com/121-online/121-online-spring-21/syllabus-and-schedule/121-schedule-spring-21.pdf. This document is subject to minor changes, as mistakes/omissions are discovered. I do my best, but it usually takes a week or two before all the details are ironed out.