



UNIVERSITY OF NORTHERN COLORADO

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## Extended Campus

College of Natural & Health Sciences  
School of Mathematical Sciences

UNC Dual Enrollment at Platte Valley High School

MATH 124-659 College Algebra (4 credits; LAC, gtP\*)  
Spring 2021

**Instructor:** Julie Thomas

**Email:** [jthomas@pvre7.org](mailto:jthomas@pvre7.org)

**Office Phone:** 970-336-8729

**Office location:** PVHS

**Office Hours:** available upon request

### Prerequisite for UNC Dual Enrollment:

- Junior or Senior status
- 3.0 cumulative GPA
- Grade of “C” or better in Algebra 2. A grade of C- is not acceptable
- Counselor/Instructor approval prior to taking the course
- Parent/guardian consent
- Special Exemptions to these qualifications may be made on an individual basis through written request to UNC Extended Campus

**Course Description:** Topics covered in this course include linear, quadratic, exponential and logarithmic functions; matrices, & theory of equations.

### Required Materials:

- Text Book: Coburn, J. & Coffelt, J. (2013), *College Algebra 3<sup>rd</sup> Edition*. New York: McGraw-Hill.
- Graphing Calculator. Acceptable models include TI-83, TI-83+, TI-84, TI-84+, all other models please ask. (Instructor will be using a TI-83+).
  - Sharing of calculators during quizzes or exams will not be permitted
  - Bring calculators to class. We will be using them throughout the term

## Methods of Evaluation:

### Grading Scale:

A	89.5-100%
B	79.5-89.49%
C	69.5-79.49%
D	59.5-69.49%
F	59.5% & below

*You must repay PVHS for your class! This goes on your UNC transcript!*

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### Grading Allotment:

20% Activities and Homework

20% Quizzes

60% Exams

### Course Requirements:

#### Summative Assessments - 60% of course grade:

- Tests are given at the end of each unit of study.
- You are expected to take all exams and quizzes at their scheduled times. Call me or discuss with me ***prior*** to the start of the test if you must miss it due to a school activity or an emergency. *If arrangements are not made ahead of time, the test score will be a zero.*
- ***There are no opportunities for retaking tests in university courses!***
- A cumulative final exam will be given.

#### Formative Assessments – 20% of course grade:

- Formative Assessments “Quizzes” will be given frequently to assess your progress with the daily material.
- There are no retakes on formative assessments.
- If you miss a quiz due to a prearranged absence, you must make arrangements to take it early or immediately upon your return to school. *If arrangements are not made ahead of time, the quiz score will be a zero.*

#### Assignments – 20% of course grade:

- Homework Assignments are given daily and will require a significant commitment of time to complete.
- In-class assignments may also be graded.
- Weekly written responses will be graded.
- Deadlines/due dates will be announced during class.
- Homework Assignments will **NOT** be accepted late. If you are absent you are responsible for getting make-up work and having it completed by the deadline. You will not receive any extra days to complete assignments when you are absent. *If you are absent, any due assignments must be emailed to me before the start of class.*

### Attendance:

Attendance is critical to success in a university mathematics course. It is imperative that you are present in class every day prepared to learn. Furthermore, if you are absent it is YOUR RESPONSIBILITY to learn the missed content. This means getting notes from classmates, reading the textbook, Khan Academy, YouTube, etc. Please note the instructor will NOT reteach the entire lesson that was missed! Any assignments assigned or due while you are absent are still due at their deadline. You are expected to take all exams and quizzes at their scheduled times. Call me or discuss with me ***prior*** to the date if you must miss it or any assignments due or assessments will be a zero.

### **Portable Electronic Devices:**

Please extend courtesy to your instructor and fellow students by turning off your portable electronic devices such as: cell phones, pagers, and iPods. Although not an audio issue, text-messaging is a distraction to other students and prevents you from full participation in class. You should keep your portable electronic devices in your backpack or purse during class. If an electronic device is seen or heard during an assessment, you will be asked to leave and receive a zero on the assessment.

### **Honor Code**

All members of the University of Northern Colorado community are entrusted with the responsibility to uphold and promote five fundamental values: Honesty, Trust, Respect, Fairness, and Responsibility. These core elements foster an atmosphere, inside and outside of the classroom, which serves as a foundation and guides the UNC community's academic, professional, and personal growth. Endorsement of these core elements by students, faculty, staff, administration, and trustees strengthens the integrity and value of our academic climate.

### **Academic Conduct: UNC's Policies**

UNC's policies and recommendations for academic misconduct will be followed. For additional information, please see the Dean of Student's website, <http://www.unco.edu/dean-of-students/>. Off-campus students taking courses from UNC, should familiarize themselves with the academic regulations and procedures contained in the current UNC catalog: <http://catalog.unco.edu/>.

### **Students with Disabilities**

Any student requesting disability accommodation for this class must inform the instructor giving appropriate notice. Students are encouraged to contact Disability Support Services at Platte Valley High School to certify documentation of disability and to ensure appropriate accommodations are implemented in a timely manner.

### **Changes**

The instructor reserves the right to amend, adjust, or otherwise modify the outline and syllabus at any time during the course. Changes will be announced in class.

**\*Liberal arts core & Colorado gtPathways.** This course satisfies 4 credits of Area 2. (Mathematics) of the UNC Liberal Arts Core. This course has been approved by the Colorado Commission on Higher Education for inclusion in the Colorado Guaranteed Transfer Program, gtP. gtP courses automatically transfer to any public institution in Colorado and will continue to count toward general education or other graduation requirements for any liberal arts or science associate or bachelor's degree program IF a grade of C- or higher is recorded. Statewide articulation agreements prescribe specific general education and degree requirements in the following professional degree programs: business, early childhood, elementary education, engineering and nursing. Most other courses not approved for the gtP designation will also be accepted in transfer by other institutions but may not fulfill general education or degree requirements. For more information on the GT Pathways program, go to <http://higherred.colorado.gov/academics/transfers/gtpathways/curriculum.html>.

*Students who successfully complete the Area 2 Liberal Arts Core requirement in mathematics will have developed an understanding of fundamental mathematical concepts and their applications, will have developed their quantitative problem-solving skills, and will have developed a level of quantitative literacy that provides a foundation for success in their programs of study, careers, and citizenship.*

*Specifically, they will be able to:*

- a) Demonstrate good problem-solving habits, including:
  - estimating solutions and recognizing unreasonable results
  - considering a variety of approaches to a given problem, and selecting one that is appropriate
  - interpreting solutions correctly
- b) Generate and interpret symbolic, graphical, numerical, and verbal (written or oral) representations of mathematical ideas
- c) Communicate mathematical ideas in written and/or oral form using appropriate mathematical language, notation,

and style

- d) Apply mathematical concepts, procedures, and techniques appropriate to the course
- e) Recognize and apply patterns or mathematical structure
- f) Utilize and integrate appropriate technology
- g) Demonstrate competency in Quantitative Literacy by being 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).

Students will be assessed on the content and competency criteria through a combination of tests, quizzes and homework assignments.

### **Dropping or withdrawing from a course**

- *Note: **Drop and withdrawal dates for the courses at your school can be found on your [dual enrollment page for your high school](#).***
- Please use the [Dual Enrollment Drop & Withdrawal Form](#).
- You can drop your course up until the designated Drop Deadline. The course will be removed from your transcript and you will receive a full tuition refund.
- After the Drop Deadline and up until the Withdrawal Deadline you can withdraw from your course. The course will remain on your transcript with a grade of “W” (this does not impact your GPA), and there is no tuition refund.
- After the withdrawal deadline you are unable to be removed from the course. The course will remain on your transcript with the grade that you have earned, and there is no tuition refund.
- If you stop attending the course but fail to officially withdraw from the course(s), you will be responsible for full tuition and fees and the course grade will remain on your transcript.

## Course Outline

### ***R. Review of Basic Concepts***

- Language, Notation, Number of Math
- Algebraic Expressions and the Properties of Real Numbers
- Exponents, Scientific Notation, and a Review of Polynomials
- Radicals and Radical Exponents
- Factoring Polynomials
- Rational Expressions

### ***I. Equations and Inequalities***

- Linear Equations, Formulas, and Problem Solving
- Linear Inequalities in One Variable
- Absolute Value Equations and Inequalities
- Complex Number
- Solving Quadratic Equations
- Solving Other Types of Equations

### ***II. Relations, Functions, and Graphs***

- Rectangular Coordinates
- Linear Graphs and Rates of Change
- Graphs and Special Forms of Linear Equations
- Functions, Function Notation, and Graphs of a Function
- Analyzing the Graph of a Function
- Linear Functions and Real Data

### ***III. More on Functions***

- Functions and Transformations
- Basic Relational Functions
- Variation

- Piecewise-Defined Functions
- Algebra and Composition of Functions
- Formulas, Functions, and Problem Solving

### ***IV. Polynomial and Rational Functions***

- Quadratic Functions
- Synthetic Division; the Remainder and Factor Theorem
- Graphing Rational Functions
- Polynomial and Rational Inequalities

### ***VI. Systems of Equations***

- Linear Systems in Two Variables
- Linear Systems in Three Variables
- Systems of Linear Inequalities and Linear Programming (if time allows)

### ***VII. Matrices***

- Solving Linear Systems Using Matrices and Row Operations
- Algebra of Matrices (if time allows)
- Applications

### ***V. Exponential and Logarithmic Functions (if time allows)***

- One-to-one and Inverse Functions
- Exponential functions
- Logarithms and Logarithmic Functions
- Properties of Logarithms
- Solving Exponential and Logarithmic Equations
- Applications