



UNIVERSITY OF NORTHERN COLORADO

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## Extended Campus

College of Natural & Health Sciences  
School of Mathematical Sciences

UNC Dual Enrollment at Windsor High School

MATH 124-666/668: College Algebra (4 credits; LAC, gtP\*)  
Fall 2020 & Spring 2021

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Teaching Location: room B200



### 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 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, and theory of equations.

### Required Materials:

- Precalculus: An Investigation of Functions (2<sup>nd</sup> Ed), Lippman, David and Rasmussen, Melonie 2017.
  - [Online book](#)
- Graphing Calculator. Acceptable models include TI-83, TI-83+, TI-84, TI-84+, all other models, please ask. (Instructor will be using a TI-84)
  - **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:

#### Standards Based Grading

In an effort to further emphasize student learning, growth, and achievement, the WHS math department teachers are utilizing Standards Based Grading. This system links each assignment and assessment to the individual standard being taught, and it also honors student growth towards reaching proficiency for that standard. The most apparent change will be in Infinite Campus, where assessments will be grouped according to the type (formative or summative) and the standard being assessed. As we become familiar with this system, you will see growth in a particular skill as well as your final achievement on the final assessment.

## Rationale

Standards Based grading seeks to provide grades that are consistent, accurate, meaningful, and most of all that support learning. Two types of assessments are used to support learning. Formative assessments are used for student learning to provide feedback and time for improvement. Summative assessments are assessments of learning, used to show student achievement. Standards Based grading links both of these assessment types to individual learning standards that are evaluated based on quality, not completion.

## Assignment Policy

Various assignments will be given each class. The purpose of these assignments is to practice/re-inforce what has been learned. All assignments should be done in pencil with neat, well-scaled graphs and tables when they are required. Assignments may or may not be collected and will be scored based on completion only. Assignments are considered complete when every problem has at least been reasonably attempted, *including work*.

It is expected that you will come to class prepared to discuss the previous night's assignment with your team and/or class.

## Summative Assessments

- Quizzes will be relatively frequent (typically following each section), and will range in length. Quizzes can be announced and/or unannounced.
- Exams will be given approximately every 2-3 weeks. Because exams are announced well in advance, you will be required to take the test even if you miss the review.
- Projects may be given. Details will be announced at the time I assign them.

## Types of Assessments

	Formative Assessments	Summative Assessments
<b>Types</b>	Homework, Class work, Checks for understanding, conferencing	Tests, Quizzes, Projects, other Performance Assessments
<b>Purpose for Student</b>	Happens during learning to give student feedback on their progress towards proficiency at a particular standard.	Happens at the end of learning to gauge students achievement of a skill
<b>Grading</b>	Formative Assessments will receive a score up to 4; "M" = not submitted (0 points if not made up).	Summative Assessments will encompass multiple standards and will be assessed on a 4-point rubric scale.
<b>Grading Scale:</b>	A 90% - 100% B 80% - 89% C 70% - 79% D 60% - 69% F 59% - below	<b>Grade Breakdown:</b>
	<b>Summative Assessments (tests, quizzes, projects)</b>	70%
	<b>Formative Assessment (daily work, in-class activities)</b>	15%
	<b>Semester Final (cumulative exam)</b>	15%

## Course Requirements

### Absences/Tardy Policy

- Unexcused Absences: You are responsible for any content missed, but no credit will be given for missed assessments.
- Excused Absences: Any quiz or test must be made up within one week after the original test date. If you only missed a review day or a test day, expect to take the test the day you return to school. *Please note that it is your responsibility to find time to come in outside of class to complete your test/quiz and to get any assignments or notes you missed.*
- Tardy Policy: Prompt attendance is a key component to academic success. Attendance is taken at the beginning of each class period. If you are tardy to class, you must report to the Attendance Office for a tardy slip to be admitted to class. The teacher and/or administration may institute additional consequences including lunch detention, after school detention, etc. for students who are repeatedly tardy to classes.

## 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. Your personal electronic devices should not be on your desks. If you know that you may need to accept an emergency phone call during class, please let the instructor know. If you need to take a phone call during class, please step out of the classroom while you complete your call. Thank you for your cooperation.

## 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/>.

## 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 Windsor 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 and posted online. The new syllabus will be available under the 'Syllabus' link, and I will post an announcement on blackboard to make everyone aware of the changes.

**\*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.

### Course Outline

- 1) Functions
  - a) Input and Output
  - b) Domain and Range
  - c) Function Notation
- 2) Linear Functions
  - a) Family of Linear functions
  - b) Rate of change
- 3) Exponential Functions
  - a) Family of Exponential Functions
  - b) Comparing Exponential and Linear Functions
  - c) Applications of Compound Interest
  - d) The number  $e$
- 4) Logarithmic Functions
  - a) Logarithms and their Properties
  - b) Logarithmic Functions and its Applications
- 5) Quadratic Functions
  - a) Family of quadratic functions
  - b) Vertex of a parabola
- 6) Polynomial and Rational Functions
  - a) Power Functions
  - b) Polynomial Functions
  - c) Short-run behavior of Polynomials
  - d) Rational Functions
  - e) Short-run behavior of Rational Functions
- 7) Transformations of functions
  - a) Shifts, Reflections and Symmetry
  - b) Vertical Stretches and Compressions

- c) Horizontal Stretches
- 8) Composition, Inverse and Combinations of Functions

### **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.

### **Paying Your Bill**

Tuition for this course will be billed directly to you by UNC. Any course materials costs (textbooks, digital access, etc.) would be a separate or additional expense.

Billing notification will be sent to your Bearmail (student email) account when your bill is ready. If you have not activated your Bearmail, directions are in the activation and registration instruction PDFs under item #2 of the [How to Register or Drop page](#).

All students will receive a bill. If you are responsible for paying your bill...

- Please pay your bill by the end of the month in which it was received to avoid finance charges.
- To view or pay your bill, log into Ursa and go to the *Financial* tab. You will not receive a bill in the mail; UNC has an eBill system.
- Further instructions for finding and paying your bill are available on the [UNC Bursar's website](#). Please contact Aimee Rogers at [970-351-2594](tel:970-351-2594) if you have any other billing concerns.