UNIVERSITY OF NORTHERN COLORADO

Extended Campus

College of Natural & Health Sciences
School of Mathematical Sciences

UNC Dual Enrollment at Bennett High School

MATH 124-685: College Algebra (4 credits; LAC, gtP*)
Fall 2020

Instructor: Linda Dodge
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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; theory of equations.

Required Materials:

- Textbook: Beecher, Penna, Bittinger. (2016). *College Algebra, 5th ed.* Pearson.
- 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.

Important Dates:
Start Date: August 17, 2020
End Date: December 17, 2020
Thanksgiving Break: November 23-27, 2020

Grading Scale:

A	90.0-100%
B	80.0-89.9%
C	70.0-79.9%
D	60.0-69.9%
F	59.9% and below

Grading Allotment:
45% Three in-class exams
20% Comprehensive Final Exam
15% Quizzes
10% Activities and Homework
10% Group Project

Course Requirements:
Missed Exam Policy: In the event of a schedule conflict, a test may be taken beforehand with advance notice. Students who fail to attend class on the day of an in-class exam must notify the instructor within 24 hours, with an ***excused*** absence, to arrange a make-up test or quiz. Your make-up exam/quiz will be taken during the arranged time and place prior to the next scheduled class. If you fail to notify the instructor, you will not be able to make up the missed test/quiz and will receive a grade of zero.

No retakes on any exam. There are no retakes of any test or quiz and make ups are for extreme circumstances only. You may have your lowest test score replaced by the final exam score if you complete the final exam review. Final is cumulative.

You will have an exam or a quiz every week! Your lowest quiz will be dropped at the end of the semester☺

Homework:
You are expected to keep a math notebook. Take notes, and complete assigned problems in this notebook. Homework problems will be assigned from the book for each section covered and are expected to be completed prior to the next class. On test days, notebooks will be checked. All problems need to be written out, except word problems, and all work needs to be shown on any problems that require steps to arrive at a solution. Please highlight or label each section and keep your notebook organized. Experience has shown that the students who take time to do extra work and put the time into homework are the ones who tend to be the most successful. I will look at your work carefully and reward points based on your work shown. Notebooks, along with class activities, are 10% of the course grade. A neat, organized and completed notebook can earn extra credit points.

Late Work:
Homework is assigned daily in math classes. It is extremely important to keep current on your assignments, as practice is a major part of learning math concepts. Homework must be completed on a daily basis *(KEEP UP!)*. Only notebooks that are ***completed*** but forgotten on test days will be accepted on the next class day for full credit.

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. 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/dos.

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 Bennett High School to certify documentation of disability and to ensure appropriate accommodations are implemented in a timely manner.

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.

Dropping or Withdrawing from a UNC Dual Credit 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.

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

LAC Area 2/ gtPathways content and competency criteria

"The Colorado Commission on Higher Education has approved Math 124 for inclusion in the Guaranteed Transfer (GT) Pathways program in the Area 2 category. For transferring students, successful completion with a minimum C– grade guarantees transfer and application of credit in this GT Pathways category. For more information on the GT Pathways program, go to http://highered.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) Graphs and Functions and Linear Functions
   a) Input and Output
   b) Domain and Range
   c) Function Notation
   d) Family of Linear Functions
   e) Rate of change, slope of Functions

2) More on Functions
   a) Increasing, decreasing, constant, relative maximum and minimum of Functions
   b) The Algebra of Functions
   c) The Composition of Functions
   d) Transformations of functions

3) Quadratic Functions
   a) Complex numbers
   b) Quadratic Equations, Functions, Zeros
   c) Analyzing Graphs of Quadratic Functions
   d) Vertex of a parabola
   e) Solving Rational Equations and Radical Equations

f) Solving Equations and Inequalities with Absolute Value

4) Polynomial and Rational Functions
   a) Polynomial Functions
   b) Graphing Polynomial Functions, behavior of Polynomials
   c) Polynomial Division
   d) Rational Functions
   e) Polynomial and Rational Inequalities

5) Exponential Functions and Logarithmic Functions
   a) Inverse Functions
   b) Family of Exponential Functions
   c) Comparing Exponential and Linear Functions
   d) Applications of Compound Interest
   e) The number e
   f) Logarithms and their Properties
   g) Logarithmic Functions and its Applications