UNC
UNIVERSITY OF NORTHERN COLORADO

Extended Campus

College of Natural & Health Sciences
School of Mathematical Sciences

UNC Dual Enrollment at Greeley Central High School

Math 120-663: Mathematics and Liberal Arts (3 Credits; LAC, gtP*)
Fall 2018 and Spring 2019

Instructor: Anthony Cerise, B.S. Mathematics, M.A.T Mathematics
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Office Location: Room 204
Office Hours: Before and After School by appointment and Seminar Time (Thursday)

Prerequisite for UNC Dual Enrollment:
- Junior or Senior Status
- 3.00 cumulative GPA
- Grade of "C" or better in Algebra
- 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: Learn about several topics in mathematics through intuitive presentation to help those who want to know more about mathematics. Not open to mathematics majors and minors.

Required Materials:
-Text Book: J. Briggs, W. (2015). *Using & Understanding Mathematics: A Quantitative Reasoning Approach, 6th ed.* Boston: 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+).
  o Sharing of calculators during quizzes or exams will not be permitted.
  o Bring calculators to class. We will be using them throughout the term.

Methods of Evaluation:
Grading Scale:
A 90-100%
B 80-89%
C 70-79%
D 60-69%
F 0-59%

Grading Allotment:

Home/Class work:	10%
Quizzes/written work	20%
Exams/projects	50%
Final Exam	10%

Course Requirements

Homework: Most daily assignments will be a worksheet or from the textbook. Take note of the following homework guidelines:

       1. Late homework will not be accepted (exceptions made by teacher).
       2. Work completed in class in groups cannot be made-up if you were absent.
       3. Homework is your study and review material for tests.

Written Assignments/Projects: Written assignments and projects will be graded using a written assignment rubric given as a handout.

- o Written assignments and projects must be **organized** and **stapled** or I will not grade it.
- o Leave sufficient space between written sections, show all necessary mathematical work and write solutions showing steps to completing the problem. Again, leave space for comments.
- o Written assignments and projects are the responsibility of each individual; however, you are encouraged to work with others outside of class time to complete the assignments.

Quizzes: The will be several quizzes throughout the semester. Quizzes will be announced **and unannounced-**be prepared for a quiz every week. The quiz will typically be administered at the end of the class period. Typically, each quiz will consist of 5-10 questions: 1-2 questions directly from the homework, 1-2 questions similar to the homework, and one conceptual question in which you will explain your solutions and methods in complete sentences. **You will not be able to make up any missed quizzes. The only exception to this rule is by providing a doctor's note or an obituary notice as evidence of the absence or simply communicating notice of the absence ahead of time.**

Exams: All exams and the final will be in-class and notes will not be allowed. **You will not be allowed to make up a missed test. The only exception to this rule is by providing a doctor's note or an obituary notice as evidence of the absence or simply communicating notice of the absence ahead of time.**

Evaluation of the examinations is based on the point values of each test item, with partial credit awarded as appropriate.
       Be prepared to start the exam at the beginning of class. There will be no time for last minute questions or review. Before the exam is handed out, you will be asked to clear your desk of books, notes, paper, etc. You may have a calculator and pencils on your desk. Scratch paper will be distributed with the exam.

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.

Attendance: Regular attendance and participation in class is expected. GCHS's attendance policy will be enforced.

Tardies: Lunch detentions will be assigned for habitual offenders.

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 Greeley Central to certify documentation of disability and to ensure appropriate accommodations are implemented in a timely manner.

*Liberal Arts Core & Colorado gtPathways
This course satisfies 3 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://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.
1) Logic and Problem-Solving
    a) Fallacies
    b) Proposition and Truth Values
    c) Sets and Venn Diagrams
    d) Analyzing Arguments
    e) Critical Thinking in Everyday Life
2) Approaches to Problem Solving
    a) Working with Units (Conversions)
    b) Problem Solving with Units
    c) Problem-Solving Guidelines and Hints
3) Numbers in the Real World
    a) Uses and Abuses of Percentages
    b) Scientific Notation
    c) Dealing with Uncertainty
    d) Index Numbers
4) Finance
    a) Power of Compounding
    b) Annuities
    c) Loans
    d) Income Taxes
    e) Federal Budget
5) Statistics and Probability
    a) Statistical Study Design
    b) Descriptive Statistics, Tables, and Graphs
    c) Correlation and Causality
6) Statistics
    a) Characterizing Data
    b) Measures of Variation
    c) Normal Distribution
    d) Statistical Inference
1) Functions and Modeling
    a) Linear Models
    b) Nonlinear Models
2) Basic Calculus
    a) Functions and Rates of Change
    b) Infinitesimals and the Slope of a Curve
    c) The Derivative
    d) Estimating Areas - Riemann sums
3) Geometry and Art
    a) Euclidean and Non-Euclidean Models
    b) Perspective
    c) Modeling Nature with Fractals
4) Putting Statistics to Work
    a) Variation
    b) Distributions
    c) Hypothesis Testing
5) Mathematics and Politics
    a) Elections
    b) Voting Theory
    c) Apportionment

6) Mathematics and Modeling
   a) Business
   b) Science
   c) World

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.

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.