Mathematics and Liberal Arts

This model is a detailed example of how an instructor might deliver the course. Future instructors may adjust the materials, assignments, grading policies and schedule so long so long as the adjustments are consistent with the course title, description and learning outcomes.

Course: MATH 120 (3.0 credits)

Instructor: Angela Steele
Email: angela.steele@unco.edu

Prerequisites: Minimum of one full year of high school algebra with a grade of "C" or better (C- is not acceptable). This class is only for students majoring in the humanities or social sciences.

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. (LAC, gtP)

Note: this class is intended for students who are not required to take any other math class for their degree. Check your degree plan in the catalog to ensure you do not need a different math class (algebra, business calc, stats, mathematics for elementary teachers)

Materials:

- FREE open textbook:
  - Math in Society by David Lippmann, © 2012, version 2.4
  - College Mathematics for Everyday Life by Inigo, et al., second edition

*The book is integrated into the modules on Canvas.

- **CHOICE** of the following:
  - A (computer laptop/ tablet) where you can access a spreadsheet AND a standard scientific calculator.
  - If you know how to program formulas into a graphing calculator, then you can choose a programmable graphing calculator. The calculator must be capable of scientific and statistical calculations. If you do not already have one, please borrow one from a friend or family member!
    - Acceptable models include: the Texas Instruments TI-83, TI-83 plus, TI-84, TI-84 plus.
    - **Check with the instructor to make sure your calculator is appropriate.**
    - Sharing of calculators during quizzes or exams will not be permitted.
    - Bring calculators to class. We will be using them throughout the semester.

**Most students in the online course choose the computer/tablet option!
**The library allows students to check out laptops and graphing calculators!!

Course Outline

1) Finance (weeks 1-8)
   a) Budget
   b) Power of Compounding
   c) Annuities
   d) Loans
   e) Income Taxes
2) Numbers in the Real World (weeks 9-12)
   a) Uses and Abuses of Percentages
   b) Conversions and Index numbers
   c) Sets and Venn Diagrams
   d) Fallacies
3) Additional Sections (Weeks 13-15)
   a) Statistics- collecting data
   b) Statistics- describing data
   c) Historical Counting
   d) Cryptography
   e) Propositions and Truth Tables

Resources for Additional Help

The following resources can be used for homework help:

Math Study Center

This lab, located in Ross 1250, offers homework help for a variety of mathematics courses. A schedule for fall and spring semester are posted on the door.

UNC Tutoring Center

See http://www.unco.edu/asa/tutoring/ for information.

Course Evaluation

Grading Scale

A	90-100%
B	80-89.9%
C	70-79.9%
D	60-69.9%
F	< 60%

Instructors may determine appropriate assignments to evaluate student achievement of course learning outcomes. Below is one example of how an instructor might choose to evaluate the course.

Grading Allotment

15% Online homework

Homework assignments will be completed using Canvas. Please note: Canvas says it is a quiz- but it is NOT! You can redo the homework as often as needed to earn full credit.

15% Quizzes

Quizzes will reflect material from lecture videos, worksheets and homework.

10% Project

Projects will be explained at a later date.

40% Tests

Two tests will be given on Canvas. You will not be allowed to make up a missed test, unless you have a university authorized absence. Evaluation of the exams is based on point values of each test item, with partial credit awarded as appropriate.

20% Final Exam

Final exam will be comprehensive and will be given on Canvas.

****Important note:**

- Online homework questions will be counted as correct or incorrect (i.e. no partial credit) but can be redone as often as needed to earn full credit. No time limit.
- Quiz questions will be counted as correct or incorrect (i.e. no partial credit) and can only be taken once. No time limit.
- Tests and final exam: students will turn in their work so partial credit can be awarded as appropriate. There will be a time limit.

University Policy & Resources

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 or if you have children in childcare or school, 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.

Disability Resources

It is the policy and practice of the University of Northern Colorado to create inclusive learning environments. If there are aspects of the instruction or design of this course that present barriers to your inclusion or to an accurate assessment of your achievement (e.g. time-limited exams, inaccessible web content, use of videos without captions), please communicate this with your professor and contact Disability Resource Center (DRC) to request accommodations.

Phone: (970) 351-2289,
Location: Michener Library L-80.
Website to learn more https://www.unco.edu/disability-resource-center/

DRC will then notify me of needed accommodations, such as additional testing time, note taker, etc.

Food Insecurity and Basic Needs

Research shows that college students experience food insecurity at higher rates than the American household rate, and that food insecurity can negatively impact academic performance and persistence. In recognition of this problem, UNC offers assistance to students facing food insecurity through an on- campus food pantry. The Bear Pantry is located in University Center 2166A, and is open for regular hours throughout the semester. Please visit www.unco.edu/bear-pantry for more information.

Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is also urged to contact Student Outreach and Support (SOS) for assistance. SOS can assist students during difficult circumstances which may include medical, mental health, personal or family crisis, illness or injury. SOS can be reached at sos@unco.edu or via phone at 970-351-2796.

Academic Integrity

You are expected to practice academic honesty in every aspect of this course. Students who engage in academic misconduct are subject to grading consequences with regard to this course and/or university disciplinary procedures through the Office of Community Standards and Conflict Resolution.

Title IX

The University of Northern Colorado is committed to providing a safe learning environment for all students that is free of all forms of discrimination and sexual harassment, including sexual assault, domestic violence, dating violence, and stalking. If you (or someone you know) has experienced or experiences any of these incidents, know that you are not alone. UNC has staff members trained to support you in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, helping with legal protective orders, and more.

Please be aware all UNC faculty and most staff members are "responsible employees," which means that if you tell a faculty member about a situation involving sexual harassment, sexual assault, dating violence, domestic violence, or stalking, they must share that information with the Title IX Coordinator, Larry Loften. Larry or a trained staff member in the Office of Institutional Equity and Compliance (OIEC) will contact you to let you know about accommodations and support services at UNC as well as your options for pursuing a process to hold accountable the person who harmed you. You are not required to speak with OIEC staff regarding the incident; your participation in OIEC processes are entirely voluntary.

If you do not want the Title IX Coordinator notified, instead of disclosing this information to your instructor, you can speak confidentially with the following people on campus and in the community. They can connect you with support services and help explore your options now, or in the future.

- UNC's Assault Survivors Advocacy Program (ASAP): 24 Hr. Hotline 970-35-4040 or www.unco.edu/asap
- UNC Counseling Center: 970-351-2496 or www.unco.edu/counseling
- UNC Psychological Services: 970-351-1645 or www.unco.edu/cebs/psych_clinic

If you are a survivor or someone concerned about a survivor, or if you would like to learn more about sexual misconduct or report an incident, please visit www.unco.edu/sexual-misconduct or contact the Office of Institutional Equity and Compliance (970-351-4899). OIEC is located on the third floor of the University Center in room 3060.

Equity and Inclusion Statement

The University of Northern Colorado embraces the diversity of students, faculty, and staff, honors the inherent dignity of each individual, and welcomes their unique perspectives, behaviors, and world views. In this course, people of all races, religions, national origins, sexual orientations, ethnicities, genders and gender identities, cognitive, physical, and behavioral abilities, socioeconomic backgrounds, regions, immigrant statuses, military or veteran statuses, size and/or shapes are strongly encouraged to share their rich array of perspectives and experiences. Course content and campus discussions will heighten your awareness to each other's individual and intersecting identities. If you would like to report an incident or learn more about identity-based discrimination/harassment, please visit www.unco.edu/institutional-equity-compliance

Respect, inclusivity, and diversity:

In my classroom, diversity and individual differences are respected, appreciated, and recognized as a source of strength. Students in this class are encouraged and expected to speak up and participate during class meetings, **and** to carefully and respectfully listen to each other. During the first few weeks of class, we'll work together to create a list of norms that will govern our interactions with each other.

So that everyone feels comfortable participating, every member of this class **must** show respect for every other member of this class. Otherwise, we won't learn anything from each other, and that would defeat the whole point of having a class (instead of just a book or something).

Communication:
If you encounter any problems during the course that may impede your ability to complete the coursework or have any issue with a grade, please let me know ASAP. If after you have spoken to me you feel the problem is not resolved, you may contact the course coordinator, Angela Steele (angela.steele@unco.edu). She will further work to resolve the issue.

Changes to the syllabus:
I reserve the right to make modifications to this syllabus (most likely in ways that work in your favor). I will notify you in class of any major change.

LAX1/ GtPathways Content and Competency Criteria

This course is a part of the Liberal Arts Curriculum at UNC and fulfills 3 credit hours of the Mathematics category. The Colorado Commission on Higher Education has approved Math 120 for inclusion in the Guaranteed Transfer (GT) Pathways program in the GT- MA1 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

UNC's LAC outcomes in Mathematics are aligned with the State of Colorado's GT Pathways student learning outcomes, competencies, and content criteria for GT-MA1. This includes CDHE competency and student learning outcomes in Quantitative Literacy.

Competency in quantitative literacy represents a student's ability to use quantifiable information and mathematical analysis to make connections and draw conclusions. Students with strong quantitative literacy skills understand and can create sophisticated arguments supported by quantitative evidence and can clearly communicate those arguments in a variety of formats (using words, tables, graphs, mathematical equations, etc.)

LAC Mathematics Learning Outcomes + gtP Competency & SLO's Student Learning Outcomes (SLOs) Students should be able to:	Mapping		
	Class	Hmwk	Tests
1. Interpret Information **a. Explain information presented in mathematical forms (e.g., equations, graphs, diagrams, tables, words).**	**X**	**X**	**X**
2. Represent Information	**X**	**X**	**X**

	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.**	X	X	X
	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.**	X	X	X
	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).**	X	X	X
Content Criteria for Mathematics (GT-MA1) *This course should provide students with the opportunity to:*		Mapping		
		Class	Hmwk	Tests
	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.	X	X	X
	b) Generate and interpret symbolic, graphical, numerical, and verbal (written or oral) representations of mathematical ideas.	X	X	X
	c) Communicate mathematical ideas in written and/or oral form using appropriate mathematical language, notation, and style.	X	X	X
	d) Apply mathematical concepts, procedures, and techniques appropriate to the course.	X	X	X
	e) Recognize and apply patterns or mathematical structure.	X	X	X
	f) Utilize and integrate appropriate technology.	X	X	X