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2019

Math 120: Mathematics & Liberal Arts syllabus

Angela Steele

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Mathematics and Liberal Arts Fall 2019

- Course:** MATH 120 (3.0 credits)
- Instructor:** Angela Steele
Email: angela.steele@unco.edu
Phone: 970-351-2630 Office: Ross 2210C
- Student Hours:** Monday 1:25-3:20pm in Ross 2210C
Tuesday 9:05-9:55 in Ross 1250
All other office hours by appt.
- Prerequisites:** Minimum of one full year of high school algebra with a grade of "C" or better (C- is not acceptable). Non-majors only
- 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 for students who are not required to take any other math for their degree. Check in your catalog to ensure you do not need a different math class (algebra, business calc, stats, elementary mathematics)

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
- A programmable graphing calculator. The calculator must be capable of scientific and statistical calculations.
 - 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.

Resources for Additional Help

The following resources can be used for homework help:

Bio-Chem-Math Study Center

This lab, located in Ross 1250, offers homework help for a variety of mathematics courses. Tutors for math coursework will be available at most times between 9:00 a.m. and 5:00 p.m. on Monday, Tuesday, and Friday. The lab schedule is posted in the math office (Ross 2239) and on the door of the Study Center.

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%

Grading Allotment

10% Attendance and participation

Attendance is expected. If you do miss a class you are still responsible for the material. Lectures will not be repeated in my office. You are allowed one absence with no effect to your grade. These absences are to be used for funerals, weddings, doctor appointments, etc.

10% Online homework

Homework assignments will be completed using Canvas. Please note: Canvas says it is a quiz- but it is NOT!

10% project

Projects will be explained at a later date.

10% Quizzes

Quizzes will reflect material from in class work and homework. No make-up quizzes will be given.

- If you are involved in UNC activities and your group is scheduled to be out of town, provide written verification and make arrangements to take the quiz BEFORE you leave. Arrange appointments, flights, etc., so that they do not interfere with your obligations as a student at UNC.

The top 8 quizzes will be recorded. I anticipate 10 quizzes throughout the semester, thus 2 quiz will be dropped. The dropped quiz should be saved for days you are sick (including Doctor appointments) or have personal obligations to attend (i.e weddings, funerals)

40% Tests

All will be in-class exams. 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.

Test dates (tentatively): 6th and 12th week

20% Final Exam

Final exam will be comprehensive and will be given on the scheduled day and time per the UNC schedule.

Schedule work, flight reservations, etc. around your exam dates. **No Exceptions!

Guidelines for a successful semester:

Show up!

Keep up with the work!

Ask questions! Ultimately the responsibility for learning in the class resides on you. It is your responsibility to actively pursue the best educational environment that meets your individual needs. Everyone has a different background, you are the only one who knows what you do and do not know. You have many resources to help you fill in those gaps!

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 Resource Center

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.

Office: (970) 351-2289, Michener Library L-80.

Students can learn more here: www.unco.edu/disability-resource-center

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 Loftin. 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.

Course Outline

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

LAC Area 2/ GtPathways content and competency criteria

“The Colorado Commission on Higher Education has approved Math 120 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.