Colorado Northwestern Community College Course Content Guide

Pre-Algebra
MAT 060 Spring 2011
Course Number: 30623
Course Credits: 3
Prerequisite: Successful completion of MAT 030 or Assessment Score

Instructor
Thad Noyes
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Office Hours: McLaughlin 237, by appointment

Course Meeting Times
Tuesday / Thursday
9:30 am – 10:45 am
Rector 21

Course Description
Furthers the study of fractions and mixed numbers. Also included are vocabulary, operations and applications of ratio, proportion, percent, area, perimeter, US and metric measures, integers, and an introduction to algebraic expressions and the solution of basic first degree equations.

Required Textbook
Basic College Mathematics: An Applied Approach, 8th Ed., by Aufmann, Barker, and Lockwood

Expected Student Outcomes or Competencies
1. Calculate using whole, fractional and decimal numbers both with and without a calculator.
2. Demonstrate knowledge and usage of fractions and mixed numbers.
3. Demonstrate knowledge and usage of ratio and proportion.
4. Demonstrate knowledge and usage of percent.
5. Demonstrate knowledge and usage of measurement, area and perimeter.
6. Demonstrate knowledge and usage of integers.
7. Demonstrate knowledge and usage of algebraic expressions (Optional).
8. Demonstrate knowledge and usage of basic first-degree equations (Optional).

Outline View
1. Review prerequisites as needed. (Optional)
2. Demonstrate knowledge and usage of fractions and mixed numbers.
    a. Interpret a fraction as parts of a whole or as an indicated division.
    b. Identify and understand the meaning of "numerator" and "denominator."
    c. Determine the least common multiple/lowest common denominator of a set of numbers.
    d. Use the identity property to rename fractions.
    e. Arrange fractions in order, smallest to largest.
    f. State the reciprocal of any given number.
    g. Change improper fractions to mixed numbers and vice versa.

       h. Compute the sum, difference, product and quotient of fractions and mixed numbers and write the answer in simplest form.
       i. Solve word problem involving fractions.
3. Demonstrate knowledge and usage of ratio and proportion.
       a. Read and write ratios and proportions using colon or fraction form.
       b. Simplify ratios and write rates as unit rates.
       c. Determine whether a proportion is true.
       d. Solve for the missing term of a proportion.
       e. Solve word problems involving proportions.
4. Demonstrate knowledge and usage of percent
       a. Convert numbers in percent form to fractional or decimal form and vice versa.
       b. Solve percent problems for base, rate, or amount (percentage).
       c. Solve word problems involving percent using the percent formula or proportions.
       d. Solve percent applications involving topics such as commission, discount, simple interest, and percent increase/decrease.
5. Demonstrate knowledge and usage of measurement, area, and perimeter.
       a. Identify the basic units in the U.S. system and convert from one unit to another introducing commonly used fractions as needed.
       b. Reproduce the metric chart (prefixes, abbreviations, and values) from kilo to milli.
       c. Convert from one metric unit to another.
       d. Convert units of length, weight, volume, and temperature between metric and U.S. systems introducing unit fractions and/or proportions as needed.
       e. Calculate the perimeter (or circumference) and area of rectangles, triangles, and circles.
       f. Use U.S. and metric rulers to measure lengths.
6. Demonstrate knowledge and usage of integers.
       a. Apply the correct order of operations to simplify arithmetic and algebraic expressions.
       b. Evaluate algebraic expressions by substituting a given integer.
       c. Compute the sum, difference, product and quotient of integers.
       d. Identify and apply properties of real numbers.
7. Demonstrate knowledge and usage of algebraic expressions. (Optional)
       a. Simplify algebraic expressions by combining similar terms. (Optional)
       b. Apply the order of operations to simplify algebraic expressions. (Optional)
       c. Add, subtract, multiply and divide algebraic expressions with rational coefficients and express the answer in simplest form. (Optional)
       d. Evaluate algebraic expressions involving exponents and rational numbers in fractional and decimal form. (Optional)
       e. Simplify algebraic expressions involving integer exponents. (Optional)
       f. Translate English phrases into algebraic expressions. (Optional)
8. Demonstrate knowledge and usage of basic first-degree equations. (Optional)
       a. Solve first-degree equations including those involving fractions, decimals, ratio, proportion, and percent. (Optional)
       b. Check the solution of first-degree equations. (Optional)
       c. Define the unknowns when solving a word problem. (Optional)
       d. Translate word problems into algebraic equations. (Optional)
       e. Solve word problems and summarize results using a complete sentence. (Optional)

Objectives

The study of Mathematics enables the student to learn critical thinking processes and problem-solving skills which may be transferable and useful in everyday life. The material presented in this course is designed to give the student sufficient background for success in future math courses, as well as provide the student with an understanding of mathematics necessary for practical application in many technical and business fields. We will cover chapters 1 through 12 in the text.

Materials
Pencils (not pens) with erasers, loose-leaf binder, 3"x 5" note cards, loose leaf paper. Calculators may be used on all assignments and tests EXCEPT for chapters 11-12. **No calculator** will be permitted for chapters 11-12.

Attendance
Consistent and prompt attendance is essential to your success in this class. Students are expected to be present and on time for each class period. Excused absences include school-sponsored events (athletics/field trips), illnesses accompanied by a doctor's note, and family emergencies (death, etc.). In order to be excused, you must inform the instructor **prior to the class time you will miss**. Having an absence excused DOES NOT change the due date of an assignment unless a PRIOR arrangement as been made with the instructor. In the event of an unexcused absence, students will not be permitted to turn in late work.

Cell Phones, iPods, etc.
The use of cell phones, iPods, headphones, etc. during class is prohibited. Cell phones must be turned off and put away (you may NOT use them as calculators). If your phone rings or vibrates, or if you send or receive text messages during class (or otherwise use your phone, EVEN AS A CALCULATOR) you will receive a verbal warning. If it happens again, your homework grade will be dropped by one letter grade. Any subsequent offense will result in removal from the class. The same policy applies to all other electronic devices.

Cheating
Cheating is not permitted and will be severely penalized. If you are caught cheating, you will receive a double "F" for the assignment. You will also be reported to the Vice President of Instruction and may face possible suspension or expulsion from the College. Any use of a calculator, cell phone, iPod, etc., during a quiz or test will be treated as cheating.

Records
A record of your work **must** be maintained by the student and presented to the instructor upon request. The record should consist of a copy of all graded materials including worksheets, homework and practice tests, filed neatly within your binder. Grades for un-maintained work may be changed to a zero at the discretion of the instructor.

Class Conduct
Students are expected to conduct themselves in a responsible and respectful manner toward the instructor and fellow students. Talking during class lectures, visiting instead of working, and/or any other behavior the instructor deems rude or disrespectful will not be tolerated and may result in removal from the class.

Late Work
Unless a prior arrangement has been made, **no late work will be accepted by the instructor**.

ASSIGNMENTS & GRADING

Attendance / Class Work (10% of Final Grade)

Daily attendance and class assignments are essential for the successful completion of this class. They will account for 10% of your final grade. Class time will be divided into two parts. The first part of class will consist of lecture of that day's material. The second part of class will be a study hall format where the student is expected to work on that day's homework/worksheet and receive tutoring/help from the instructor. Students are expected to stay and make use of the entire class time in order to receive credit. The only way a student may leave early and still receive credit is if that day's homework/worksheet is completed and presented to the instructor.

Homework (10 % of Final Grade)

Homework will be given every day of this class. Homework is due at the BEGINNING of each class period. Remember, if you are absent (even for a school sponsored event) your homework is still due by the beginning of class unless a prior arrangement has been made. All homework should be completed in a neat, legible, and orderly fashion. Your answers must be circled. If I am unable to read your homework, of if I have trouble finding your answers, the homework will be returned to you to do again. Each homework assignment is worth 20 points. You will receive 10 points for completing the assignment and I will grade 10 random problems. Your homework will account for 10% of your final grade.

Tests (80% of Final Grade)

Four exams will be given throughout the semester. Three of those will be chapter exams and the fourth will be a comprehensive final exam. You may use one 3"x 5" note card containing whatever information from the chapter you think will be useful while taking the test (formulas, axioms, etc.). Missed tests can be made up for full credit only for excused absences when the instructor is notified <u>in advance</u> and <u>in writing</u>. Call me if you cannot attend class the day of a test. Without prior arrangements, 25% will be deducted off your test grade per day late. Save your practice tests! Tests will account for 80% of your final grade.

Grading

Grading Scale	Percent of Final Grade
A = 90-100	Attendance / Classwork 10%
B = 80-89	Homework 10%
C = 70-79	Exams 80%
D = 60-69	
F = 0-59	

ADA Policy

Any student, who believes he/she has a disability, as outlined in the Americans with Disabilities Act, and would like reasonable accommodations, should set up an appointment to discuss this with the instructor.

-The instructor reserves the right to make any and all changes to this syllabus and to the course content without prior notice. Changes will be announced in class. If absent, you will still be responsible for knowing the changes. Don't miss class!!!

MAT 060 Course Contract

I, _____, have received, read, understood and agree to abide by the
        (print your name)

terms presented in the class syllabus. I have received a handout detailing the homework assigned

in class. I have recorded the email address (thadnoyes@gmail.com) and phone number

(970.629.3712) of my instructor into my cell phone or other organizational device.

Signed:_____

Dated:_____