COURSE OUTLINE

FALL 2006

APPROVED COURSE

MATH 402

CATALOG INFORMATION

Dept & Nbr: MATH 402
Title: PRE-ALGEBRA
Full Title: Pre-Algebra

Units | Course Hours Per Week | Nbr of Weeks | Course Hours | Total
Max:  3.0 | Lecture 3.0 | 17 | Lecture 51.0 | 
Min:  3.0 | Lab 1.0 |  | Lab 17.0 | 
| Contact DHR 0.0 |  | Contact DHR 0.0 | 
| Contact Total 4.0 |  | Contact Total 68.0 | 
Non-contact DHR 0.0 |  | Non-contact DHR 0.0 |

Title 5 Category: 02  AA DEGREE NON-APPLICABLE
Grading:  GR  Grade Only
Repeatability:  00  ONE REPEAT IF GRADE WAS D, F, OR NC
Also listed as:

COURSE DESCRIPTION:
This course covers operations with integers, fractions and decimals and associated applications, percentages, ratio, and geometry and measurement, critical thinking and applications. Elementary algebra topics such as variables, expressions, and solving equations are introduced.

PREREQUISITES:
Prerequisite: Completion of Math 400 with a 'C' or better, or assessment test recommendation.

COREQUISITES:

ADVISORY:
No advisories.

LIMITS ON ENROLLMENT:

METHODS OF INSTRUCTION:
Lecture, group work, use of basic computer software in lab, discussions.

ARTICULATION and CERTIFICATE INFORMATION

ASSOCIATE DEGREE:
Area:

CSU GE:
Transfer area:

IGETC:
Transfer area:
COURSE CONTENT

COURSE LEARNING OUTCOMES:

1. Perform basic operations with whole numbers, integers, fractions and decimals without the aid of a calculator
   ILO: 2, 1
   Measure: Quiz, homework, exams, lab work
2. Analyze a variety of problems, decide on a correct method or strategy of solution, implement the strategy to solve the problem, and evaluate solution to determine if it is reasonable using estimation skills
   ILO: 2, 1
   Measure: Quiz, homework, exams, labwork
3. Simplify algebraic expressions and solve equations involving integers, fractions and decimals without the aid of a calculator.
   ILO: 2, 1
   Measure: Quiz, homework, exams, labwork
4. Develop and utilize math specific study skills and test-taking strategies.
   ILO: 2,1, 6
   Measure: Labwork, homework, quizzes and exams
5. Set up and solve applied problems involving proportion, ratio, unit conversion, and percents.
   ILO: 2,1
   Measure: Quiz, homework, exams, labwork
6. Compute area, volume and perimeter of basic geometric figures.
   ILO: 2,1
   Measure: quiz, homework, exams, labwork
7. Understand basic geometric properties involving lines, angles, and other geometric figures and use these properties to solve problems.
   ILO: 2,1
   Measure: Quiz, homework, exams, labwork

TOPICS AND SCOPE:

WEEK 1

3 lec, 1 lab

CONTENT: Review Order of operations, adding positive/negative numbers.
Orientation to math lab and other tutorial sources of help on campus

HOMEWORK: Assigned reading and problems, lab assignment.

STUDENT PERFORMANCE OBJECTIVES: Student will be able to evaluate a numerical expression involving whole numbers, add and subtract integers and solve application problems without a calculator.

WEEK 2
3 lec, 1 lab
CONTENT: Subtracting/Multiplying/dividing and order of ops with integers
Review operations with integers

HOMEWORK: Assigned reading and problems, lab assignment.

STUDENT PERFORMANCE OBJECTIVES: Student will be able to add/subtract, multiply/divide integers, evaluate a numerical expression involving integers without a calculator and solve application problems.

WEEK 3
3 lec, 1 lab
CONTENT: Variables, Simplifying algebraic expressions, solving equations
Math study skills/test taking strategies

HOMEWORK: Assigned reading and problems, lab assignment.

STUDENT PERFORMANCE OBJECTIVES: Student will be able to simplify algebraic expressions and solve simple equations involving integers without a calculator.

WEEK 4
3 lec, 1 lab
CONTENT: Exam #1 - Integers, Simplifying fractions, mixed numbers vs. improper fractions.
Review for exam, practice test

HOMEWORK: Assigned reading and problems, lab assignment.

STUDENT PERFORMANCE OBJECTIVES: Student will be able to simplify fractions and convert between mixed numbers and improper fractions without a calculator.

WEEK 5
3 lec, 1 lab
CONTENT: multiplying dividing fractions, finding LCD
Fraction group project

HOMEWORK: Assigned reading and problems, lab assignment.

STUDENT PERFORMANCE OBJECTIVES: Student will be able to multiply and divide fractions without a calculator, solve application problems and find the LCD of two fractions.

WEEK 6
3 lec, 1 lab
CONTENT: Adding/subtracting fractions, Order of operations
Review of operations with fractions - fraction worksheet

HOMEWORK: Assigned reading and problems, lab assignment.

STUDENT PERFORMANCE OBJECTIVES: Student will be able to add/subtract fractions and evaluate numerical expressions involving fractions without the use of a calculator, and solve application problems.

WEEK 7
3 lec, 1 lab
CONTENT: Simplifying complex fractions, simplifying expressions involving fractions and solving equations with fractions
Fraction project
HOMEWORK: Assigned reading and problems, lab assignment.
STUDENT PERFORMANCE OBJECTIVES: Student will be able to simplify complex fractions and algebraic expressions involving fractions and solve simple equations involving fractions without the use of a calculator, and solve application problems.

WEEK 8
3 lec, 1 lab
CONTENT: Review of adding/subtracting, multiplying/dividing decimals, order of operations with decimals.
Decimal Project
HOMEWORK: Assigned reading and problems, lab assignment.
STUDENT PERFORMANCE OBJECTIVES: Student will be able to add/subtract, multiply/divide and evaluate numerical expressions with decimals without a calculator.

WEEK 9
3 lec, 1 lab
CONTENT: Converting between fractions and decimals, equations with decimals
Review fractions and decimals
HOMEWORK: Assigned reading and problems, lab assignment.
STUDENT PERFORMANCE OBJECTIVES: Student will be able to work with a combination of fractions and decimals, and solve equations with fractions and/or decimals without a calculator.

WEEK 10
3 lec, 1 lab
CONTENT: Exam #2 - fractions and decimals, Ratios, Rates and Proportion
Math study skills/reflections of semester progress
HOMEWORK: Assigned reading and problems, lab assignment.
STUDENT PERFORMANCE OBJECTIVES: Student will be able to simplify a ratio, compute a rate, determine proportionality and solve a proportion.

WEEK 11
3 lec, 1 lab
CONTENT: Applications of proportions, similar and congruent triangles
Proportion project
HOMEWORK: Assigned reading and problems, lab assignment.
STUDENT PERFORMANCE OBJECTIVES: Student will be able to solve applications of proportions, including similar triangles.

WEEK 12
3 lec, 1 lab
CONTENT: Review of Percentage/fraction/decimal, Solving percentage problems
Percentage/Fraction/Decimal project
HOMEWORK: Assigned reading and problems, lab assignment.
STUDENT PERFORMANCE OBJECTIVES: Student will be able to express a percentage as a fraction and/or decimal and vice-versa, solve a basic percentage problem using a variety of methods.

WEEK 13
3 lec, 1 lab
CONTENT: Applications of percentages such as sales tax, mark up and discount and percentage increase/decrease.
Percentage group project
HOMEWORK: Assigned reading and problems, lab assignment.
STUDENT PERFORMANCE OBJECTIVES: Student will be able to set up and solve a application problem involving percentages.
WEEK 14
3 lec, 1 lab
CONTENT: Exam #3 - ratio, proportions and percentages, Introduction to basic geometry such as measurement of angles, lines, parallel/intersection lines, Practice Test, Prepare for Exam
HOMEWORK: Assigned reading and problems, lab assignment.
STUDENT PERFORMANCE OBJECTIVES: Student will be able to identify parallel lines, right angles, acute/obtuse angles, and draw an angle with a given measurement.
WEEK 15
3 lec, 1 lab
CONTENT: Linear measurement, Metric vs. English, perimeter Geometry project
HOMEWORK: Assigned reading and problems, lab assignment.
STUDENT PERFORMANCE OBJECTIVES: Student will be able to compute perimeter of basic geometric objects and convert between English and Metric measurement systems.
WEEK 16
3 lec, 1 lab
CONTENT: Measurement of area, volume, weight and mass Metric vs. English measurement activity
HOMEWORK: Assigned reading and problems, lab assignment.
STUDENT PERFORMANCE OBJECTIVES: Student will be able to compute area and volume of basic geometric figures and convert between English and Metric measurement systems
WEEK 17
3 lec, 1 lab
CONTENT: Exam #4 - geometry and measurement, Review for final exam Practice final exam
HOMEWORK: Assigned reading and problems, lab assignment.
STUDENT PERFORMANCE OBJECTIVES: Student will review semesters work and prepare for the final exam.
WEEK 18
2 hours
Final exam

ASSIGNMENTS:
Homework will be assigned after each class. Throughout the course, applications will be emphasized.

METHODS OF EVALUATION:

The types of writing assignments required:
None

The problem-solving assignments required:
Homework problems
Quizzes
Exams
Other: Study skills assignments, projects

The types of skill demonstrations required:
None

The types of objective examinations used in the course:
Multiple choice
True/false
Matching items
Completion

Other category:
None

The basis for assigning students grades in the course:
Writing assignments: 0% - 0%
Problem-solving demonstrations: 90% - 100%
Skill demonstrations: 0% - 0%
Objective examinations: 5% - 10%
Other methods of evaluation: 0% - 0%

REPRESENTATIVE TEXTBOOKS:
or other appropriate college level text.
Reading level of text: 12th Grade level. Verified by: G. Curtis

REASON FOR REVISION
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MISCELLANEOUS
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Advisory generate desc: N NO
Area department: NS NATURAL SCIENCES
Audit flag: N NOT AUDITABLE
Basic skills: C COMPUTATION B/SKILLS
CIP code: 00.0000 NOT USED
Classification: B DEVELOPMENTAL PREPARATORY COURSES
Cost level: 01 NOT USED
Disciplines: MATHEMATICS
Division: 10 LIBERAL ARTS AND SCIENCES
Faculty service areas: MATHEMATICS
Fee: $0.00
In-service: X NOT AN IN-SERVICE COURSE
Level below transfer: 3 3 LEVELS BELOW THE TRANSFERABLE LEVEL
Matric-requiring: M REQUIRES MATH ASSESSMENT
Maximum class size: 0
Maximum wait list: 0
Method of instruction: 03 LECTURE/LABORATORY
Non-credit category: X NOT APPLICABLE, CREDIT COURSE
Open entry/exit: N NOT OPEN ENTRY/OPEN EXIT
Pacs activity: 4930 GENERAL STUDIES
Pacs program project: 0000 UNRESTRICTED
Preq/coreq generate desc: N NO
Preq/coreq provisional: N NO
Preq/coreq reg check: Y PREREQUISITE RULES EXIST
Repeat group id:
Requires instructor sig: N INSTRUCTOR'S SIGNATURE NOT REQUIRED
SAM classification: E NON-OCCUPATIONAL
Selected/special topic: N NOT A SELECTED TOPIC COURSE
Special class: X NOT A SPECIAL COURSE
Subject: XXXXXX NOT USED
TOP code: 4930.41 PRE-ALGEBRA (BASIC MATH/ARITHMETIC)
Workload: 0.0000

VEA support services to voc ed students:
Disabled: N
Academically disadvantaged: N
Economically disadvantaged: N
Limited English proficiency: N
Single parents/displaced homemaker: N
Gender equity: N
Consumer/homemaker education: N