

Course Outline

COURSE: MATH 402 DIVISION: 10 ALSO LISTED AS:

TERM EFFECTIVE: Fall 2018 CURRICULUM APPROVAL DATE: 03/26/2018

SHORT TITLE: PRE-ALGEBRA

LONG TITLE: Pre-Algebra

Units	Number of Weeks		Contact Hours/Week		Total Contact Hours
3	18	Lecture:	3	Lecture:	54
		Lab:	2	Lab:	36
		Other:	0	Other:	0
		Total:	5	Total:	90

COURSE DESCRIPTION:

This course covers operations with integers, fractions, decimals and associated applications, ratio, proportion, geometry, and measurements with the emphasis on critical thinking and applications. Elementary algebra topics such as variables, expressions, and solving equations are introduced. This is a pass/no pass course where pass is given for mastery of the above topics. The mastery level is set by the department. PREREQUISITE: Completion of Math 400 with a grade of 'C' or better OR completion of Math 400 with a grade of 'P' OR appropriate assessment test score.

PREREQUISITES:

- Completion of MATH 400, as UG, with a grade of C or better.
- OR
- Completion of MATH 400, as UG, with a grade of P or better.
- OR
- Score of 13 on Algebra Readiness
- OR
- Score of 12 on Elementary Algebra
- OR
- Score of 13 on Algebra Readiness - Revised
- OR
- Score of 2300 on Accuplacer Math

COREQUISITES:

CREDIT STATUS: C - Credit - Degree Non Applicable

GRADING MODES

P - Pass/No Pass

REPEATABILITY: N - Course may not be repeated

SCHEDULE TYPES:

02 - Lecture and/or discussion

03 - Lecture/Laboratory

04 - Laboratory/Studio/Activity

04A - Laboratory - LEH 0.65

STUDENT LEARNING OUTCOMES:

1. Perform basic operations with whole numbers, integers, fractions, and decimals without the aid of a calculator.

Measure of assessment: Quiz, Homework, exams, labwork.

Year assessed, or planned year of assessment: 2017

Semester: Spring

2. Analyze a variety of problems, decide on a correct method or strategy of solution, implement the strategy to solve the problems, and evaluate solution to determine if it is reasonable using estimation skills.

Measure of assessment: Quiz, Homework, exams, labwork.

Year assessed, or planned year of assessment: 2017

Semester: Spring

3. Simplify algebraic expressions and solve equations involving integers, fractions, and decimals without the aid of a calculator.

Measure of assessment: Quiz, Homework, exams, labwork.

Year assessed, or planned year of assessment: 2017

Semester: Spring

4. Set up and solve applied problems involving proportion, ratio, unit conversion, and percents.

Measure of assessment: Quiz, Homework, exams, labwork.

Year assessed, or planned year of assessment: 2017

5. Understand basic geometric properties involving lines, angles, and other geometric figures and use these properties to solve problems. Compute perimeter, area, and volume of geometric figures.

Measure of assessment: Quiz, Homework, exams, labwork.

Year assessed, or planned year of assessment: 2017

Semester: Spring

CONTENT, STUDENT PERFORMANCE OBJECTIVES, OUT-OF-CLASS ASSIGNMENTS

Curriculum Approval Date: 03/26/2018

3 lec.

2 lab Hours

CONTENT: Review Order of operations, adding/subtracting 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.

3 lec,

2 lab Hours

CONTENT: Multiplying/dividing and order of ops with integers

Introduce concept of variables.

Math study

skills, test taking strategies

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. Students will also be able

to simplify simple algebraic expressions.

3 lec,

2 lab Hours

CONTENT:

Simplifying algebraic expressions, solving equations

Exam #1 - Integers.

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.

3 lec,

2 lab Hours

CONTENT: Simplifying fractions, mixed numbers vs. improper fractions.

Multiplying and

dividing fractions.

Fraction Group Project

HOMEWORK: Assigned reading and problems, lab assignment.

STUDENT PERFORMANCE OBJECTIVES: Student will be able to simplify fractions,

convert between mixed

numbers and improper fractions, and multiply/divide

fractions without a calculator. CONTENT: finding LCD, 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 find the LCD of two or

more fractions, add/subtract fractions and

evaluate numerical expressions

involving fractions without the use of a calculator, and solve application

problems.

3 lec,

2 lab Hours

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..

3 lec,

2 lab

Hours

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.

3 lec,

2 lab Hours

CONTENT: Converting between fractions and decimals, equations with decimals,

Exam #2 - fractions and 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.

3 lec,

2 lab Hours

CONTENT: Ratios, Rates and Proportion, applications of proportions including similar and congruent triangles.

Proportion Project

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 and solve applications of proportions, including similar triangles.

3 lec,

2 lab Hours

CONTENT:

Ratios, Rates and Proportion, applications of proportions including similar and congruent triangles.

Proportion Project

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 and solve applications of proportions, including similar triangles.

3 lec,
2 lab
Hours

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.

3 lec,
2 lab Hours

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.

3 lec,
2 lab Hours

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.

3 lec,
2 lab Hours

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.

3 lec,
2 lab Hours

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

3 lec,

2

lab Hours

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.

2 Hours

final exam

METHODS OF INSTRUCTION:

Lecture, group work, and discussions.

OUT OF CLASS ASSIGNMENTS:

Required Outside Hours: 108

Assignment Description: Homework and lab assignments.

METHODS OF EVALUATION:

Writing assignments

Percent of total grade: 0.00 %

If this is a degree applicable course, but substantial writing assignments are not appropriate, indicate reason: Course is primarily computational; Course primarily involves skill demonstration or problem solving

Problem-solving assignments

Percent of total grade: 90.00 %

Percent range of total grade: 90 % to 100 % Homework Problems; Quizzes; Exams; Other: Projects, study skills assessment

Objective examinations

Percent of total grade: 5.00 %

Percent range of total grade: 5 % to 10 True/False; Matching Items; Completion

REPRESENTATIVE TEXTBOOKS:

Required Representative Textbooks

Elayn Martin-Gay. Prealgebra or other appropriate college level text.. Boston: Pearson,2015.

ISBN: 978-0-321-95504-3

Reading Level of Text, Grade: 12 Verified by: Ken Wagman

ARTICULATION and CERTIFICATE INFORMATION

Associate Degree:

CSU GE:

IGETC:

CSU TRANSFER:

Not Transferable

UC TRANSFER:

Not Transferable

SUPPLEMENTAL DATA:

Basic Skills: B

Classification: Y

Noncredit Category: Y

Cooperative Education:

Program Status: 2 Stand-alone

Special Class Status: N

CAN:

CAN Sequence:

CSU Crosswalk Course Department:

CSU Crosswalk Course Number:

Prior to College Level: C

Non Credit Enhanced Funding: N

Funding Agency Code: Y

In-Service: N

Occupational Course: E

Maximum Hours:

Minimum Hours:

Course Control Number: CCC000306956

Sports/Physical Education Course: N

Taxonomy of Program: 170100